COMMISSION DE LA CARTE GÉOLOGIQUE DU MONDE
COMMISSION FOR THE GEOLOGICAL MAP OF THE WORLD

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Resolutions of the General Assembly

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CCGM
CGMW

1913 - 2013

100 YEARS MAPPING THE WORLD

The commemorative centennial issue

SECRETARIAT

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FOREWORD

The history of CGMW is rooted in that of the Commission for the Geological Map of Europe, created during the 2nd International Geological Congress (IGC) of Bologna in 1881, although it is during the 12th IGC in Toronto (Canada), in 1913, that is mentioned for the first time "the Commission for the geological map of Europe and the new world map". Our General Assembly 2014 is therefore that of the centenary of the birth of our Commission.

Our colleague Philippe Bouysse, who held the position of CGMW Secretary General from 1991 to 2000, and who remains very active, achieved a historian work by researching and analyzing in detail the origins of the Commission. The paper is annexed to this Bulletin (Bull. 57 bis). A brief overview of this long saga was given by Jean Marçais, CGMW President from 1964 to 1980, in his foreword to the Geological World Atlas published by the CGMW and UNESCO between 1974 and 1984, the first to offer a comprehensive and modern geological view of the World.

" ... The idea of preparing a geological atlas of the world, within a broad ranging context of international co-operation, was put forward at the very first sessions of the International Geological Congress, but consideration of a project to publish a comprehensive map of this kind started only at the 11th International Geological Congress held in Stockholm in 1910, when G. O. Smith proposed that an atlas be compiled on a 1:1,000,000 scale, which was the scale the Geological Congress had recommended in 1909. The general outline of the proposal was approved, despite the fact that the members of the Commission for the Geological Map of Europe felt it would be difficult to implement, on both technical and financial grounds, and it was accordingly decided to admit geologists from other continents to the Commission for the Map of Europe.

At the 12th International Geological Congress held in Toronto in 1913, a number of 1:5,000,000 drafts, prepared in Berlin, were presented to the meeting. Emmanuel de Margerie reminded the Congress of the existence of the one-sheet world maps prepared by Ami Boué in 1845, and of the two editions of the eight-sheet 1:23,000,000 scale map published by Jules Marcou in 1861 and 1873 in Zurich before going on to outline the rules which he felt were essential for the production of a World atlas. These were the need for wide-ranging international co-operation, adoption of the 1:5,000,000 scale, and

EDITORIAL

L'histoire de la CCGM s'enracine dans celle de la Commission pour la Carte géologique de l'Europe, créée lors du 2ème Congrès Géologique International (CGI) à Bologne en 1881, mais c'est lors du 12ème CGI à Toronto (Canada), en 1913, qu'est mentionnée pour la première fois la Commission de la carte géologique internationale de l'Europe et de la nouvelle carte mondiale. Notre Assemblée Générale 2014 est donc celle du centenaire de la naissance de notre Commission.

Notre collègue Philippe Bouysse qui a occupé, de 1991 à 2000, la fonction de Secrétaire Général de la CCGM, et qui reste toujours très actif, a fait œuvre d'historien en analysant en détail la genèse de la Commission qui fait l'objet d'un article en annexe au présent Bulletin (Bull. 57 bis). Un bref aperçu de cette longue saga nous est fourni par Jean Marçais, Président de la CCGM de 1964 à 1980, dans sa préface à l'Atlas Géologique du Monde réalisé par la CCGM et l'UNESCO entre 1974 et 1984, le premier à offrir une vue géologique globale et moderne du monde.

"… Le projet de préparer une carte géologique du monde, dans le cadre d'une large coopération internationale, a été envisagé dès les premières sessions des congrès géologiques internationaux. Mais la prise en considération de publier une telle carte d'ensemble ne fut adoptée qu'en 1910 au 11e Congrès géologique international à Stockholm sur la proposition de G. O. Smith qui suggérait la réalisation d'un atlas au 1/1 000 000 (échelle souhaitée par le Congrès géographique de 1909). Cette proposition, si elle parut sur le plan technique et financier difficilement réalisable aux membres de la Commission de la Carte géologique de 1'Europe, fut cependant retenue dans son principe et conduisit à l'élargissement de la composition de la Commission de la Carte géologique de 1'Europe par la nomination de géologues d'autres continents.

A Toronto, en 1913, lors du 12e Congrès géologique international, quelques maquettes préparées à Berlin au 1/5 000 000 furent présentées. Emmanuel de Margerie, après avoir rappelé l'existence des cartes mondiales préparées par Ami Boué en 1845 (une feuille), et les deux éditions de la carte en huit feuilles éditées à Zurich par Jules Marcou au 1/23 000 000 en 1861 et 1873, donna les règles qui lui paraissaient indispensables à la réalisation d'un atlas mondial : nécessité d'une large coopération internationale, choix de 1'échelle du 1/5 000 000, *the choice of a suitable projection so as to produce a satisfactory representation of every major continental unit. In the light of experience, those rules still appear to be valid sixty-three years later.*

In Madrid in 1926, G. P. Krusch, the President of the Commission for the Geological Map of Europe, was instrumental in having geologists from the different continents appointed to the Commission in order to give it a world-wide character. W. Schriel of the Prussian Geological Survey presented draft maps of Europe and of the world on scales of 1:10,000,000 and 1:15,000,000 respectively.

At the 15th International Geological Congress held in Pretoria in 1929, the firm of Dietrich Reiner, which was responsible for publishing the sheets of the map of Europe, proposed that work be started on a globe which would be published by the Prussian Geological Survey on a scale in the region of 1:15,000,000 (representing a diameter of about 0.85 meter) and offered to take charge of its distribution. M. Beyschlag and W. Schriel presented a world geological map on a scale of 1:15,000,000 which had been prepared by the Prussian Geological Survey, as well as a draft of a general legend. G. P. Krusch also presented a number of 1:5,000,000 scale sheets of the map of the world.

At the 16th International Geological Congress held in Washington, D.C. in 1933, W. von Seidlitz, who had taken the place of G.P. Krusch, presented four sheets for Africa on a scale of 1:5,000,000 which had been prepared in collaboration with South America and France. At the 17th Congress held in Moscow in 1937, F. Blondel, Vice-President of the Commission, was unable to bring a sufficient number of participants together to hold a worth-while discussion on the subject.

The project got off to a fresh start only after the Second World War. At the 18th International Geological Congress held in London in 1948, W. Kegel, President of the Commission for the Geological Map of Europe, reported on the progress of the work and presented four sheets of Africa and three of North America. The technical and financial problems encountered in producing maps for the different continents had made progress difficult, in spite of the goodwill displayed by the geological surveys concerned. It was only at the 19th Congress held in Algiers in 1952 that, thanks to the efforts of F. Blondel, who had become President of the CGMW, a real start was made to arranging for the preparation of a geological world atlas. It would have been unjust, however, not to recall the efforts made by our predecessors from 1910 onwards to ensure that such an atlas would be produced with

choix d'une projection adaptée permettant d'avoir une vue satisfaisante de chaque vaste ensemble continental. A la lumière de l'expérience, ces règles, soixante-trois ans plus tard, paraissent toujours valables.

En 1926 à Madrid, G. P. Krusch, président de la Commission de la Carte géologique de l'Europe, suscita la nomination de géologues de divers continents pour donner à la commission son aspect planétaire. W. Schriel, du Service géologique de Prusse, présenta les projets de la carte d'Europe au 1/10 000 000 et de la carte du globe au 1/15 000 000.

En 1929 à Pretoria, lors du 15e CGI, la firme Dietrich Rainer, qui assurait la publication des feuilles de 1'Europe, proposa la préparation d'un globe qui serait publié par le Service géologique de Prusse à une échelle voisine du 1/15 000 000 (0,85 mètre de diamètre environ) et dont elle assurerait la distribution. M. Beyschlag et W. Schriel présentèrent une carte géologique du monde au 1/15 000 000 préparée par le Service géologique de Prusse, ainsi qu'un projet de légende générale. G. Krusch présenta également certaines feuilles au 1/5 000 000 de la carte du monde.

En 1933 à Washington D.C., au 16e Congrès géologique international, W. von Seidlitz, qui avait remplacé G. P. Krusch, présenta quatre feuilles de 1'Afrique établies avec la participation de 1'Afrique du Sud et de la France à l'échelle du 1/5 000 000. En 1937, lors du 17e Congrès à Moscou, F. Blondel, vice-président de la commission, ne put réunir un nombre de participants suffisant pour une discussion valable.

Ce fut donc seulement après la Seconde Guerre mondiale que le projet put prendre son départ. Lors du 18e Congrès géologique international à Londres, en 1948, W. Kegel, président de la Commission de la Carte géologique de l'Europe, avait rendu compte de l'avancement des travaux et présenta quatre feuilles de 1'Afrique et trois feuilles de 1'Amérique du Nord. Les difficultés techniques et financières de réalisation des cartes des différents continents, malgré la bonne volonté des Services géologiques concernés, rendaient la poursuite des travaux difficile. Ce ne fut qu'en 1952, au 19e Congrès à Alger, sous l'impulsion de F. Blondel, nommé président de la CCGM, que commencèrent réellement les travaux d'organisation du travail d'un atlas géologique du monde. Mais il aurait été injuste de ne pas rappeler les efforts faits par nos prédécesseurs depuis 1910 pour faire entrer dans la voie de sa réalisation un atlas géologique du monde, *the widest possible international co-operation, and the important role played by the German geologists, together with E. de Margerie for France and G. O. Smith for the U.S.A. This meeting also approved the proposal which had originally been put to a restricted meeting held in Berlin in 1938, whereby the members entitled to sit on the Commission should be directors of geological surveys rather than eminent persons appointed in their individual capacities.*

The basic composition of the Commission, with its seven continental Vice-Presidents under the presidency of F. Blondel, and its Tectonic and Metallogenic Sub commissions, was laid down at the 20th International Geological Congress held in Mexico City in 1956 when the sheets for Africa, Europe and the U.S.S.R. were presented, and the project to produce a geological world atlas on the scale of 1:10,000,000 was adopted, as well as the geological maps of South America and South East Asia.

After the Algiers Congress in 1952, F. Blondel approached a number of publishing houses and printers regarding the possibility of producing a world atlas and expressed the view that its publication could be financed by subscription. His report on the work of the Commission for the Geological Map of the World for the period 1953-54, describing the efforts made to prepare and publish the geological world atlas on a scale of 1:10,000,000, was accordingly adopted at the 20th International Geological Congress in Mexico City. It then became possible to start work on the immense undertaking (for which) Dr. Georges Choubert, at that time chief geologist with the Geological Survey of Morocco, and Dr. Anne Faure-Mauret, geologist of the same Survey and Professor at the University of Rabat, were appointed general co-ordinators …".

The Geological Atlas of the World was published between 1974 and 1984. Since then, three editions of the Geological Map of the World (1990, 2000 and 2010) have been released, and a fouth is under way for 2016. Our Commission has constantly pursued his task of bringing up to date the geological cartography for both the continents and the oceans, and has recently expanded its production to include geophysical maps in cooperation with IUGG. Besides the printed maps, digital spatial data are now part of the demand, which we fulfill when available. The steady rhythm and the success of our publications are the proof of our Commission's good health and of its sustainability.

établi dans le cadre d'une large coopération internationale, et le rôle important qu'y jouèrent en particulier les géologues allemands, ainsi que E. de Margerie pour la France et G. O. Smith pour les Etats-Unis d'Amérique. C'est également à cette session que fut approuvée la proposition, adoptée lors d'une réunion restreinte de la CCGM tenue à Berlin en 1938, que les membres de droit de la commission seraient les directeurs des services géologiques nationaux et non des personnalités choisies à titre individuel.

C'est en 1956, au 20e Congrès géologique international de Mexico, que la constitution de la commission, avec la nomination de sept vice-présidents continentaux sous la présidence de F. Blondel et la création de deux sous-commissions (tectonique et métallogénique), fut fixée dans ses grands traits, que furent présentées des feuilles d'Afrique, d'Europe et d'URSS et que fut approuvé le projet d'établir un atlas géologique du monde au 1/10 000 000 ainsi que des cartes géologiques de l'Amérique du Sud et de l'Asie du Sud-Est.

Après le Congrès d'Alger (1952), F. Blondel avait prospecté auprès de divers éditeurs et imprimeurs les possibilités de publication d'un atlas géologique du monde et pensait pouvoir le publier en le finançant par des souscriptions. Aussi son rapport d'activité de la CCGM pour la période 1953/54, rendant compte des efforts entrepris pour la préparation et la publication de l'atlas géologique du monde au 1/10 000 000 fut-il adopté au 20e Congrès géologique international à Mexico (1956). Il devenait alors possible d'entreprendre la préparation de ce vaste travail (pour lequel) Georges Choubert, alors géologue en chef au Service géologique du Maroc, et Anne Faure-Muret, géologue au même service et professeur à la Faculté des sciences de Rabat furent nommés coordonnateurs généraux …".

La parution de l'Atlas Géologique du Monde s'est étalée entre 1974 et 1984. Depuis cette époque, trois éditions de la Carte géologique du Monde (1990, 2000 et 2010) ont vu le jour, et une quatrième est en préparation pour 2016. Notre Commission n'a cessé de poursuivre sa tache d'actualisation de la cartographie géologique tant en ce qui concerne les continents que des océans, en étendant depuis peu sa production aux cartes géophysiques en collaboration avec l'IUGG. Outre les cartes imprimées, ce sont maintenant les données spatialisées qui nous sont aussi demandées et que nous fournissons lorsqu'elles sont disponibles. Le rythme soutenu autant que le succès de nos publications témoigne de la bonne santé de notre Commission et de son développement durable.

Philippe Rossi
President

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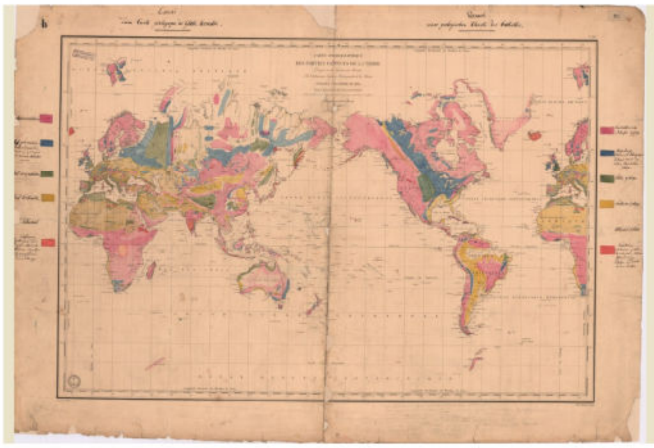
Carte géologique de la Terre
au 1/23M (Jules Marcou, 1861)

Geological Map of the World
at 1:23M scale (Jules Marcou, 1861)



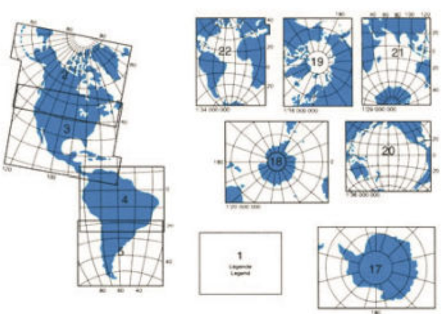
Essai d'une Carte géologique
du globe terrestre (Ami Boué, 1843)

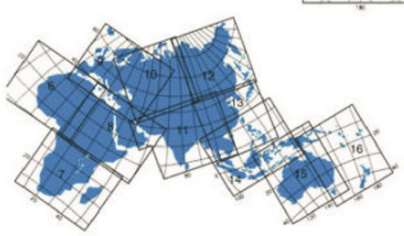
Draft of a Geological Map of the
Earth (Ami Boué, 1843)

Geologische Karte der Erde, 1/15M
(F. Beyschlag & W. Schriel,1929/32)

Carte géologique de la Terre au 1/15M
(F. Beyschlag & W. Schriel,1929/32)

Geological map of the Earth, 1/15M
(F. Beyschlag & W. Schriel,1929/32)





Atlas géologique du monde au 1/10M
(A. Faure-Muret, B. Choubert, 1974 / 1984)

Geological World Atlas 1/10M, 1/10M scale
(A. Faure-Muret, B. Choubert, 1974 / 1984)

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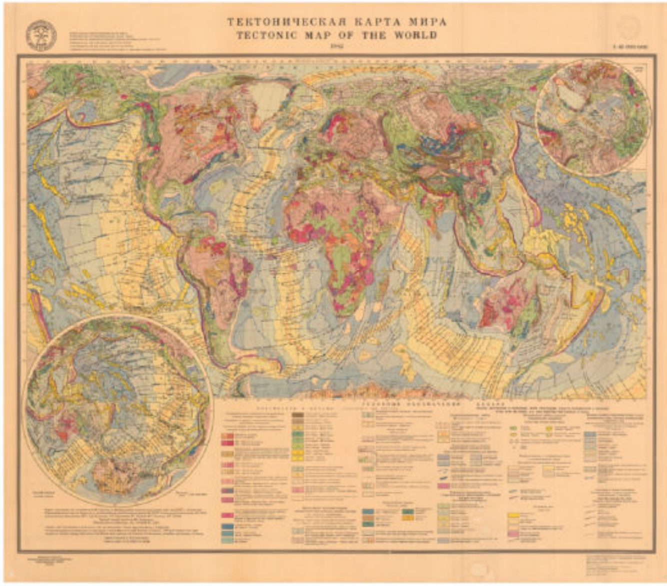
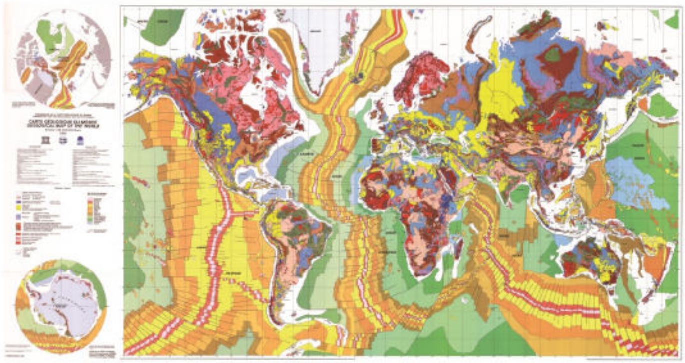


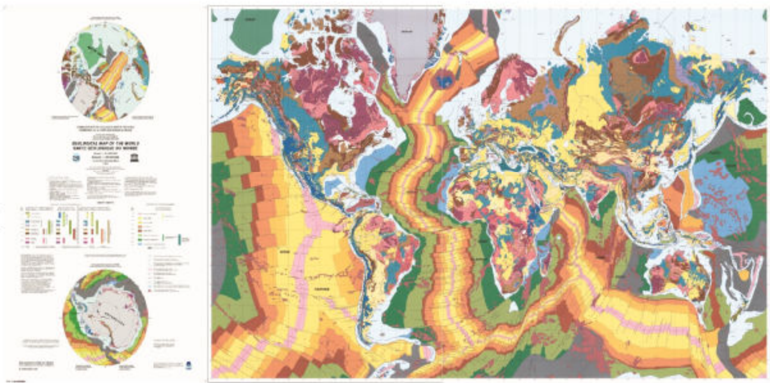
Carte tectonique du monde au 1:45M,
1ère édition (1982)

Tectonic Map of
the World art 1:45M scale,
1st edition (1982)



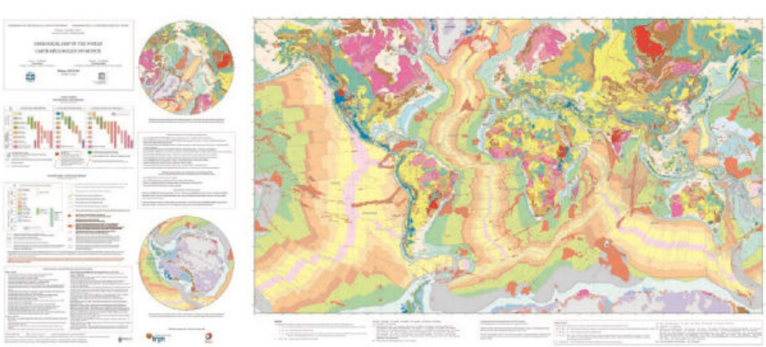
Carte géologique du Monde au 1:25M
1ère édition (1990)

Geological Map of the World at 1:25M
scale, 1st edition (1990)



Carte géologique du Monde au 1:25M
2ème édition (2000)

Geological Map of the World at 1:25M
scale, 2nd edition (2000)



Carte géologique du Monde
au 1:25M
3ème édition (2010)

Geological Map of
the World at 1:25M scale
3rd edition (2010)

Abdolazim Haghipour

Dr. Abdolazim Haghipour passed away on last Wednesday 15th August 2012, at the age of 73. He was a well-known, widely acknowledged Iranian geoscientist and an internationally active geosciences promoter thanks to his fluency in four languages (Farsi, English, French and German).

His long-lasting relationship with CGMW started as early as 1978 when he was appointed CGMW Vice-President for the Middle East during the General Assembly held in Paris, UNESCO, a position that he held until 2010.

After a B. Sc. in Geology at the University of Tehran (1963), he joined the Geological Survey of Iran (GSI) as geologist and pursued his formation with a Certificate in Geology at the University of Ankara, Turkey (1966); a M. Sc. at the University of Tehran (1967); a Post-Graduate in Geology at the University of Vienna, Austria (1968) and a Ph. D. at the University of Grenoble, France (1987). After successive positions as Director of Divisions and Departments at GSI, he became Director General from 1980 to 1981 and then Advisor.

As a geologist, Dr. A. Haghipour authored numerous scientific papers and was a much appreciated colleague among his CGMW Bureau fellows. He contributed to the realizations of the Commission with a number of maps among which it is worth to mention the Seismotectonic Map of the Middle East (1992), the first edition of the Geological Map of the Middle East (1993) and of the second edition in preparation since 2010, the Sismotectonic Map of the World (2001), one of the CGMW's best sellers, and the digital version of the Structural and Kinematic Map of the World (2006).

We will remember the fine scientist and the charming colleague who devoted himself to the promotion of Geosciences in the Middle East countries.

CGMW staff conveys its deepest regrets and sincere sympathy to his family and friends.

Le Dr. Abdolazim Haghipour est décédé le mercredi 15 août 2012, à l'âge de 73 ans. Géologue iranien reconnu et très apprécié, il a été un et un promoteur actif des Sciences de la Terre sur la scène internationale, notamment grâce à son aisance en quatre langues (Farsi, Anglais, Français et Allemand).

Il a entamé une longue collaboration avec la CCGM dès 1978, avec sa nomination à la Vice-président de la Sous-commission pour le Moyen-Orient lors de l'Assemblée générale à Paris à l'UNESCO, et a exercé cette fonction sans discontinuer jusqu'en 2010.

Après un B. Sc. en Géologie à l'Université de Téhéran (1963), il rejoint le Service Géologique d'Iran (GSI) comme géologue et poursuit sa formation par un certificat en géologie à l'Université d'Ankara (Turquie, 1966) ; une maîtrise à l'Université de Téhéran (1967); un troisième cycle en géologie à l'Université de Vienne (Autriche, 1968) et un doctorat ès Sciences à l'Université de Grenoble (France, 1987). Après avoir occupé les postes successifs de directeur de Divisions et de Départements au GSI, il en devient Directeur général de 1980 à 1981, puis Conseiller.

Comme géologue, le Dr. A. Haghipour, auteur de nombreux articles scientifiques, a été très apprécié par ses collègues du Bureau de la CCGM. Il a contribué aux réalisations de la Commission avec un certain nombre de cartes parmi lesquelles il convient de mentionner : la Carte sismotectonique du Moyen Orient (1992), la première édition de la Carte géologique du Moyen-Orient (1993) et de la deuxième édition en préparation depuis 2010, la Carte sismotectonique du monde (2001), un des best-sellers de la CCGM, et la version numérique de la Carte structurale et cinématique du monde (2006).

On se souviendra avec émotion du scientifique et du charmant collègue qui s'est dévoué à la promotion des Sciences de la Terre dans les pays du Moyen-Orient.

La CCGM exprime ses sentiments attristés et ses sincères condoléances à sa famille et à ses amis.

GENERAL ASSEMBLY

Brisbane, 34th International Geological Congress

August 7th, 2012

CGMW GENERAL ASSEMBLY

Plenary Sessions

Tuesday 7^{th} August 2012

Brisbane – 34 IGC - **Plaza Auditorium**

PROGRAMME

Tuesday 7^{th} August	**MORNING** PLENARY SESSION
08h45 – 09:00	Registration and welcome coffee
09:00 – 10:00	Opening addresses – A. Riccardi, President IUGS. 10’ – I. Lambert IGC 34 Secretary General. 10’ – P. J. Mc Keever, UNESCO, 10’ – S. Finney, ICS, The international Stratigraphic Chart 10’ – Report of the Bureau Meeting by the CGMW President and Secretary General. 15’ Changes in the composition of the Bureau, ratification by the General Assembly. **Reports of CGMW Vice-Presidents in charge of Continental Subcommissions**
10:00 – 10:15	– **Europe**: K. Asch • Report on the activity of the Subcommission : the Map of Quaternary of Europe
10:15 – 10:30	– **Northern Eurasia**: O. V. Petrov • Current projects and the Tectonic Map of the Arctic
10:30 – 10:45	COFFEE BREAK
10:45 – 11:00	– **Africa**: F. Toteu • Report on the activity of the Subcommission
11:00 – 11:15	– **Asia**: Ren Jishun / Jin Xiaochi • The International Geological Map of Asia: IGMA, 1:5 M
11:15 – 11:30	– **South America**: J. Gómez Tapias • The Geological Map of South America 1:1 M and 1:5 M • The Tectonic Map of South America: L. M. Fraga
11:30 – 11:45	– **Antarctica**: G. Leitchenkov • The Tectonic Map of Antarctica
11:45 – 12:00	– **Middle East**: A. Saidi / M.Esteraby • The Magmatic Map of the Middle East • The Map of Quaternary of the Middle East
12:00 – 12:15	– **North America** • Report on the activity of the Subcommission • The 1:50 000 mapping program of the Mexican Geological Survey: E. Espinosa END OF THE MORNING SESSION

12:15– 13:30	LUNCH
Tuesday 7th August	**AFTERNOON** **PLENARY SESSION**
	Reports on the activity of thematic Subcommissions
13:30 – 14:00	– **Seafloor Maps**: P. Miles • The South Atlantic Structural Map • The Morpho-Bathymetry and Morpho-Tectonic Maps of the Mediterranean Sea
14:00– 14:15	– **Metamorphic Maps**: R. Oberhänsli • The Metamorphic Map of the Eastern Mediterranean • The Structural and Metamorphic Maps of the Alps
14:15 – 14:35	– **Metallogenic Maps**: E. Zappettini • Report on the activity of the Subcommission • The Metallogenic Map of Europe & GIS Deposits • The Metallogenic Map of the Middle East
14:35 – 14:50	– **Tectonic Maps**: I. Pospelov • Report on the activity of the Subcommission 2010-2011
14:50 – 15:20	COFFEE BREAK
15:20 – 15:45	– **Geophysical Maps**: M. Mandea • The World Gravity Map (WGM) • World Magnetic Anomaly Map – WDMAM 2011: J. Korhonen
15:45 – 16:00	– **Hydrogeological Maps** • Current projects
16:00 – 16:15	– **Natural Hazards Maps**: E. Tsukuda • Report on the activity of the Subcommission.
16:15 – 16:30	**OneGeology**. State of the art: I. Jackson Educational projects: CGMW Secretary General
16:30 – 16:45	The Lithological World Map: N. Moosdorf A. O. B.
16:45 – 17:30	Reading and approval of the resolutions by the General Assembly.

17:30	Closing of the General Assembly

RESOLUTIONS OF THE CGMW GENERAL ASSEMBLY

BRISBANE – 34TH IGC

RÉSOLUTIONS DE L'ASSEMBLÉE GÉNERALE DE LA CCGM

BRISBANE – 34E CGI

August 7, 2012 **7 août 2012**

THE COMMISSION

1. **Thanks** the Organizing Committee of the 34th IGC for its support in the preparation of the present General Assembly, and
2. **expresses** its deepest thanks to the Secretary General of the 34th IGC, Dr. Ian Lambert, for providing the best conditions and technical facilities for the hosting of the General Assembly in Brisbane, and
3. **acknowledges** the resignation of Academician Yuri Leonov from his position of President for the Subcommission for Tectonic Maps, Dr. Peter Lyttle from his position of CGMW Vice President for North and Central America, Dr. Ian Lambert from his position of CGMW Vice-President for Oceania-Australia, Dr. Paula Cornejo from her position of CGMW Secretary General for South America, Dr. Varoujan Sissakian from his position of CGMW Deputy Secretary General for the Middle East, and
4. deeply **thanks** all these colleagues for their long and fruitful commitment and actions in the CGMW, and
   - **endorses** the appointment of the following new Bureau Members:
   - Dr. Nicolay B. Kuznetsov, Vice-Chairman of the Scientific Council on Problems of Geotectonics and Geodynamics of the Russian Academy of Sciences, as President of the Subcommission for Tectonic Maps,
   - Dr. Marc R. Saint-Onge, Head Regional Geology, Geological Survey of Canada, as CGMW Vice-President for North and Central America,
   - Dr. Richard Blewett, Groupe Leader Regional Geology & Mineral Systems, Geoscience Australia, as CGMW Vice-President for Australia-Oceania,
   - Dr. Randall C. Orndorff, Director, Eastern Geology and Paleoclimate Center at US Geological Survey, as CGMW Secretary General for North and Central America,
   - Dr. Jorge Gomez Tapias, Manager of the Geological Map of Colombia at the Servicio Geológico de Colombia, as CGMW Secretary General for South America,
   - Dr. Saffa F. Fouad, Deputy Director General of State Geological Survey and Mining of Iraq, as CGMW Deputy Secretary General for the Middle East,
   - Dr. Pierre Nehlig, Deputy Head of the Geology Division at BRGM, as CGMW Deputy Secretary General elect, and
5. **extends** its most sincere thanks to the BRGM (French Geological Survey) for its continuous and generous support, and
6. warmly **thanks** IUGS for its annual subsidy and additional support for the 34th IGC, and
7. **thanks** IUGS and EPISODES's Chief Editor for contributing to the promotion and visibility of CGMW publications, and
8. **gives** its warmest thanks to UNESCO for its support, and **appreciates** the welcome address given by Dr. Patrick Mc Keever, and
9. **appreciates** the welcome address given by IUGS President Prof. Alberto Riccardi, and

CONTINENTAL SUBCOMMISSIONS

SUBCOMMISSION FOR EUROPE

10. **appreciates** the launching of the *IQUAME 2500* (*International Quaternary Map of Europe at 1:2.5M scale*) project at the INQUA Congress 2011 in Bern, where support from INQUA was obtained and the core of a sound international scientific editorial board was created, and
11. **congratulates** the Editor-in-chief Dr. Kristine Asch for her approach and effort to create the *IQUAME 2500* database thereby fulfilling scientific requirements and international

LA COMMISSION

1. **Remercie** le Comité d'organisation du 34ème Congrès Géologique International pour son aide dans la préparation de la présente Assemblée Générale et,
2. **exprime** tous ses remerciements au Secrétaire Général du 34ème Congrès Géologique International, le Dr. Ian Lambert, pour la mise à disposition des conditions et équipements techniques les meilleurs pour l'accueil de l'Assemblée générale à Brisbane et,
3. **prend acte de** la démission de l'Académicien Yuri Leonov de sa position de Président de la Sous-commission pour les Cartes Tectoniques, du Dr. Peter Lyttle de sa position de Vice-président de la Sous-commission pour l'Amérique du Nord et Centrale, du Dr. Ian Lambert de sa position de Vice-président de la Sous-commission pour l'Océanie, de la Dr. Paula Cornejo de sa position de Secrétaire générale de la Sous-commission pour l'Amérique du Sud, du Dr. Varoujyan Sissakian de sa position de Secrétaire général adjoint de la Sous-commission pour le Moyen-Orient et,
4. **remercie** grandement tous ces collègues pour leur long et fructueux engagement ainsi que de leur activité au sein de la CCGM, et
   - **approuve** la nomination des nouveaux membres du Bureau dont les noms suivent:
   - Le Dr. Nicolay B. Kuznetsov, Directeur adjoint du Comité Scientifique de l'Académie des Sciences de Russie, comme Président de la Sous-commission pour les Cartes Tectoniques,
   - Le Dr. Marc R. Saint-Onge, Chef de la Géologie Régionale, Commission Géologique du Canada, comme Vice-président de la Sous-commission pour l'Amérique du Nord,
   - Le Dr. Richard Blewett, Responsable de Groupe, Géologie Régionale et Systèmes mineralisés, Division Minéralisations et risques naturels à Geoscience Australia comme Vice-président de la Sous-commission pour l'Australie-Océanie,
   - Le Dr. Randall C. Orndorff, Directeur, Centre de Géologie de l'Est et de Paléoclimatologie à l'USGS, comme Secretaire général de la Sous-commission pour l'Amérique du Nord,
   - Le Dr. Jorge Gomez Tapias, Responsable de la Carte Géologique de Colombie au Service Géologique de Colombie, comme Secrétaire Général de la Sous-commission pour l'Amérique du Sud,
   - Le Dr. Saffa F. Fouad, Directeur général adjoint du Service géologique d'Iraq comme Secrétaire général adjoint de la Sous-commission pour le Moyen-Orient,
   - Le Dr. Pierre Nehlig, Directeur adjoint de la Division Géologie au BRGM, comme Secrétaire général adjoint elect de la CCGM, et
5. **étend** ses plus sincères remerciements au BRGM (Service géologique français), pour son soutien continu et généreux, et
6. **remercie** chaleureusement l'IUGS pour sa subvention annuelle et le soutien supplémentaire apporté pour le 34ème Congrès Géologique International
7. **remercie** l'IUGS et le Rédacteur-en-Chef d'Episodes pour sa contribution à la promotion et la visibilité des publications de la CCGM, et
8. **adresse** ses plus chaleureux remerciements à l'UNESCO pour son soutien et **apprécie** le discours de bienvenue de M. Patrick Mc Keever, et
9. **apprécie** le discours de bienvenue du Président de l'IUGS, le Prof. Alberto Riccardi, et

SOUS-COMMISSIONS CONTINENTALES

SUBCOMMISSION POUR l'EUROPE

10. **se félicite** du lancement du projet *IQUAME2500 (Carte Internationale du Quaternaire de l'Europe au 1:2.5M*) lors du Congrès INQUA en 2011 à Berne, où ce projet a obtenu le soutien de l'INQUA et où a été mis en place le noyau d'un Comité de rédaction scientifique international, et
11. **félicite** l'éditeur-en-chef, la Dr. Kristine Asch, pour son approche et ses efforts pour créer la base de données *IQUAME 2500* remplissant les exigences scientifiques et les normes

standards such as INSPIRE and IUGS/CGI vocabulary , and

12. **thanks** Dr. Kristine Asch, her team at BGR and the GBA team in Vienna, for having organized two successful workshops to establish the bases of the work , and

13. fully **supports** the realization of the *IQUAME 2500* and **looks forward** to seeing the *IQUAME 2500* draft map presented at the IGC 35 in Capetown in 2016, and

14. **congratulates** the authors of the *Morpho-Bathymetric Map of the Mediterranean at 1:4M scale* (Laëtitia Brosolo, Jean Mascle and Bruno Loubrieu) and the *Geological and Morpho-Tectonic Map of the Mediterranean Domain* (Jean Mascle and Georges Mascle), and

SUBCOMMISSION FOR AFRICA

15. **acknowledges** the current compilation of the *Seismotectonic Map of Africa at 1:10M* prepared by Prof. Mustapha Meghraoui (IPG Strasbourg) in the framework of the OAGS – IGCP project and using the CGMW *Tectonic Map of Africa* as tectonic background, and

16. **encourages** the launching of a project to produce a second edition of the *Geological Map of Africa at 1:5M* scale in time for the next IGC 35 to be held in Capetown, South Africa, and

SUBCOMMISSION FOR NORTH AND CENTRAL AMERICA

17. **thanks** Dr. Peter Lyttle for his endeavour and support to the Commission during his term of office as CGMW Vice-President for North and Central America, and

18. **welcomes** Dr. Marc Saint-Onge from the Geological Survey of Canada as new CGMW Vice-President for North and Central America and Dr. Randall C. Orndorff, from the USGS, as new CGMW Secretary General for North and Central America, and

19. **was informed** by Dr. Enrique Espinoza, Deputy Director of the Geological Survey of Mexico, on the state of the art of the Geological Mapping of Mexico and the project to harmonize transboundary geological data with Guatemala and other Central American countries, and

20. **proposes** that, in the framework of this cooperation, the preparation by Dr. Philippe Bouysse – former CGMW Secretary General – of the CGMW *Structural Map of the Caribbean at 1:4M scale* (including Central America) serves as a general structural sketch to harmonize the large scale geological synthesis between North and South America and,

21. **recommends** to prepare a meeting to discuss and upgrade the draft of the CGMW *Structural Map of the Caribbean* in Central America when completed, and

SUBCOMMISSION FOR SOUTH AMERICA

22. **expresses** its thanks to the Geological Survey of Brazil (CPRM) and the Geological and Mining Survey of Argentina (SEGEMAR) for their valuable support in the compilation of the *Tectonic Map of South America at 1:5 M scale,* under the coordination of Profs. Umberto Cordani and Victor Ramos, and

23. **acknowledges** the presentation by Dr. Lêda Fraga (CPRM) of the state of the art of the draft of the *Tectonic Map of South America at 1:5 M scale*, and

24. **appreciates** the progress achieved in the project to prepare several map-sheets of the *Geological and Mineral Resources Map of South America at 1:1 M scale, and related data base (GIS-South America 1:1 M),* carried out by several Geological Surveys of South America, harmonizing trans-boundary geological information, and

25. **expresses** its satisfaction for the start of the activities directed towards the new edition of the GIS that underpins the

internationales telles que celles d'INSPIRE et du vocabulaire IUGS/CGI, et

12. **remercie** la Dr. Kristine Asch, son équipe au BGR et l'équipe GBA à Vienne, pour avoir organisé deux ateliers pour établir avec succès les bases de ce travail, et

13. **appuie** la réalisation de l'*IQUAME2500* et **attend** la maquette du projet *IQUAME2500* qui sera présenté au 35ème CGI à Capetown en 2016, et

14. **félicite** les auteurs de la carte *Morpho-bathymétrique de la Méditerranée* au *1:4M* (Laure Brosolo, Jean Mascle et Bruno Loubrieu) et de la *Carte Géologique et Morpho-tectonique du Domaine Méditerranéen* (Jean Mascle et Georges Mascle) et,

SOUS-COMMISSION POUR L'AFRIQUE

15. **prend** connaissance de la compilation en cours de la *Carte sismotectonique de l'Afrique à l'échelle 1 :10M* préparée par le Prof. Mustapha Meghraoui (IPG Strasbourg) dans le cadre du projet l'OAGS –PICG et utilisant la *Carte Tectonique de l'Afrique* de la CCGM comme fond tectonique, et

16. **encourage** le lancement d'un projet d'une deuxième édition de la *Carte Géologique de l'Afrique à 1:5M* destinée à être présenté au prochain 35ème CGI au Cap en Afrique du Sud, et

SOUS-COMMISSION POUR L'AMÉRIQUE DU NORD ET CENTRALE

17. **remercie** le Dr. Peter Lyttle pour ses efforts et le soutien qu'il a apporté à la Commission pendant son mandat en tant que Vice-président de la CCGM pour l'Amérique du Nord et Centrale, et

18. **accueille** le Dr. Marc Saint-Onge de la Commission Géologique du Canada en tant que nouveau Vice-président de la CCGM pour l'Amérique du Nord et Centrale, et le Dr. Randall C. Orndorff de l'USGS, en tant que nouveau Secrétaire général de la CCGM pour l'Amérique du Nord et du Centre, et

19. **a été informée** par le Dr. Enrique Espinoza, Directeur adjoint du Service géologique du Mexique, de l'état d'avancement de la cartographie géologique du Mexique et du projet d'harmonisation transfrontalière des données géologiques avec le Guatemala et les autres pays d'Amérique centrale, et

20. **propose** que, dans le cadre de cette coopération, la préparation de la Carte Structurale des Caraïbes et de l'Amérique Centrale par le Secrétaire général honoraire de la CCGM, le Dr. Philippe Bouysse, serve de cadre général afin d'harmoniser les connaissances géologiques à grande échelle entre l'Amérique du Nord et l'Amérique du Sud, et

21. **recommande** de préparer une réunion pour discuter et améliorer, lorsqu'elle sera prête, la maquette de la *Carte Structurale des Caraïbes et de l'Amérique centrale* de la CCGM, et

SOUS-COMMISSION POUR L'AMÉRIQUE DU SUD

22. **exprime** ses remerciements au Service Géologique du Brésil (CPRM) et au Service Géologique et Minier d'Argentine (SEGEMAR) pour leur précieux soutien dans la compilation de la Carte Tectonique de l'Amérique du Sud à 1:5 M, coordonnée par les Prof. Umberto Cordani et Victor Ramos, et

23. **exprime sa reconnaissance** à la Dr. Lêda M. Fraga (CPRM) pour sa présentation de l'état de la maquette du projet de Carte Tectonique de l'Amérique du Sud à 1:5 M, et

24. **apprécie** les progrès accomplis dans le projet de préparation de plusieurs feuilles de la Carte des Ressources Géologiques et Minières de l'Amérique du Sud à 1:1 M et de la base de données connexe (SIG-Amérique du Sud au 1:1 M), menées par plusieurs services géologiques sud-américains pour harmoniser les informations géologiques transfrontalières, et

25. **exprime** sa satisfaction vis-à-vis du lancement des travaux pour la réalisation de la nouvelle édition du SIG qui sous-tend

Geological Map of South America project at 1:5 M scale, under the coordination of Dr. Carlos Schobbenhaus and Jorge Gomez Tapias , and

SUBCOMMISSION FOR SOUTH AND EAST ASIA

26. **highly congratulates** the successful completion of the mapping project of the *International Geological Map of Asia at 1:5M scale (IGMA 5000),* under the leader ship of Prof. Ren Jishun and achieved with the contribution of more than 100 geologists from 20 countries, the assistance of the Subcommissions for North Eurasia, the Middle East and Seafloor Maps, and substantial support from the China Geological Survey, and **is confident** that its publication will be completed in 2012 , and
27. **supports** timely updating of the data base of the *IGMA 5000*, by means of continuous collection of new data with the feedback from users through a user-friendly interface; and **encourages** the idea of a continuous upgrade of the database and the release of a new digital version of *IGMA 5000* when changes dictate an update, and
28. **encourages** production of a reduced scale version of the *IGMA 5000* in an easier to handle scale of 1:10M, which can be widely distributed and suitable for educational and other practical purposes, and
29. **appreciates** the idea of carrying out a multi-disciplinary study of the tectonics of Asia based on *IGMA 5000*, and the compilation of an *International Tectonic Map of East and South Asia at 1:10M scale* with the participation of related countries and institutions, and
30. **acknowledges** the proposition to construct a *Geological and Structural Map of the South China Sea Region* using an international scientific project in progress that involves many participants of the *IGMA 5000*, and

SUBCOMMISSION FOR THE MIDDLE EAST

31. **congratulates** Dr. Abdolazim Haghipour and Dr. Abdollah Saidi and the Geological Survey of Iran's GIS team for the important work performed in achieving the first digitized *International Geological Map of the Middle East at 1:5M scale (IGMME 5000)* and associated data base, and
32. **hopes** that the *IGMME 5000* (2nd edition) be published as soon as the fit with the DTM is implemented, as previously required, and
33. **acknowledges** the GSI-GIS department for its presentation of the *IGMME* associated database, and
34. **expresses** its satisfaction for the publication of the *Metallogenic Map of the Middle-East at 1:5 M* by Dr. Ali Aghanabati under the auspices of the Subcommission of the Middle East, and
35. **acknowledges** the following proposed collaborators to be part of the working group of the *International Quaternary Map of the Middle East*: Ms. Samira Ahmadi (GRCIR, Iran); Dr. Mohammad Reza Ghassemi (GSI); Dr. Fariborz Gharib (GRCIR); Dr. Abdollah Saidi (GSI); Mrs. Marzieh Esterabi Ashtiani (GSI); Dr. Hamed Vahdati Nassab (Tarbiat Modares University, Iran); Dr. Razieh Lak (GSI); Dr. Gevorg Navasardyan (National Academy of Sciences, Armenia; Dr. Mohammad Amin Moghalis (Geological Survey, Yemen) and **requires** them to enlarge the number of participating countries of the Middle East, and
36. **expresses** its satisfaction for the preparation of a early preliminary draft of the *International Quaternary Map of the Middle-East* and **recommends** that the team of coordinators collaborates closely with Dr. Kristine Asch in charge of the *INQUAME 2500* project in order to ensure the best correspondence between the respective databases, and
37. **acknowledges** the project of the *International Magmatic Map of the Middle East* and the following proposed collaborators

le projet de la *Carte géologique de l'Amérique du Sud* au 1:5M, sous la coordination du Dr. Carlos Schobbenhaus et Jorge Gomez Tápias, et

SOUS-COMMISSION POUR L'ASIE DU SUD ET DE L'EST

26. **félicite** vivement la réussite du projet de la Carte géologique Internationale de l'Asie au 1:5M (*IGMA 5000*), réalisé sous la direction du Prof. Ren Jishun avec la contribution de plus de 100 géologues de 20 pays, l'assistance des Sous-commissions pour l'Eurasie du Nord, du Moyen-Orient et les cartes de fond océanique et un appui substantiel du Service Géologique de Chine, et est convaincue que sa publication sera achevée en 2012, et
27. **supporte** la mise à jour périodique de la base de données de l'*IGMA 5000*, grâce à la collecte permanente de données nouvelles avec une rétroaction des utilisateurs via une interface conviviale ; et encourage l'idée d'une actualisation continue de la base de données et la publication d'une nouvelle version numérique de *IGMA 5000* lorsque les modifications imposeront sa mise à jour, et
28. **encourage** la production d'une version d'échelle réduite de la carte *IGMA 5000* dans un format plus facile à manipuler au 1:10M, qui pourra être largement distribuée et utilisable notamment pour l'enseignement, et
29. **apprécie** l'idée de mener une étude multidisciplinaire de la tectonique de l'Asie fondée sur l'*IGMA 5000* et la compilation de la *Carte Tectonique Internationale de l'Asie de l'Est et du Sud à 1:10M* avec la participation des pays et des institutions associés, et
30. **prend acte** de la proposition d'établir une *Carte de l'Environnement Géologique et Structural de la Région de la Mer de Chine Méridionale* en utilisant un projet scientifique international en cours qui implique de nombreux participants de l'*IGMA 5000*, et

SOUS-COMMISSION POUR LE MOYEN-ORIENT

31. **félicite** le Dr. Abdolazim Haghipour, le Dr. Abdollah Saidi et le Service du SIG du Service géologique d'Iran (GSI) pour l'important travail effectué lors de la réalisation de la première *Carte géologique internationale numérique du Moyen-Orient au 1:5M* (*IGMME5000*) et de la base de données (SIG) associée, et
32. **espère** que la carte *IGMME5000* (2ème édition) sera imprimée dès que l'ajustement avec le MNT (Modèle numérique de Terrain) sera effectué comme précédemment requis, et
33. **exprime** sa reconnaissance au service SIG du GSI pour sa présentation du SIG associé à la carte *IGMME*, et
34. **exprime** sa satisfaction pour la publication de la *Carte métallogénique du Moyen-Orient au 1:5 M* par Dr. Ali Aghanabati, sous les auspices de la Sous-commission pour le Moyen-Orient, et
35. **prend acte** de la liste des collaborateurs suivants pour faire partie du groupe de travail de la *Carte du Quaternaire du Moyen-Orient* : Mme Samira Ahmadi (GRCIR, Iran) ; Dr. Mohammad Reza Ghassemi (GSI) ; Dr. Fariborz Gharib (GRCIR) ; Dr. Abdollah Saidi (GSI) ; Mme Marzieh Esterabi Ashtiani (GSI) ; Dr. Hamed Vahdati Nassab (Université Tarbiat Modares, Iran) ; Dr. Sara Lak (GSI) ; Dr. Gevorg Navasardyan (Académie Nationale des Sciences, Arménie ; Dr. Mohammad Amin Moghalis (Service Géologique du Yémen) et **demande** d'élargir le nombre des pays participants du Moyen-Orient, et
36. **exprime** sa satisfaction pour la préparation de l'avant-projet préliminaire de la *Carte du Quaternaire du Moyen-Orient* et **recommande** que l'équipe de coordonnateurs collabore étroitement avec la Dr. Kristine Asch, responsable du projet *INQUAME5000* afin d'assurer la meilleure correspondance entre les bases de données respectives, et
37. **prend acte** du projet de la *Carte du magmatisme du Moyen-Orient (IGQMME 5000)* et les collaborateurs suivants

to be part of the working group of this map: Dr. Jalil Ghalamghash (GSI); Dr. Abdollah Saidi, (GSI); Mrs. Marzieh Esterabi Ashtiani (GSI); Dr. Morteza Khalatbari (GSI); Dr. Monireh. Kheirkhah (GSI); Mrs. Mastaneh Haghnazar (GSI) ; Mr. Omid Ardebili (GSI) ; Dr. Nazim Imamverdiev (Baku State University, Azerbaijan); Dr. Gevorg Navasardyan (National Academy of Sciences, Armenia); Dr. Nino Sadradze (Alexandre Janelidze Institute of Geology, Tbilissi, Georgia); Dr. Ender Sarifakioglu (MTA, Turkey) ; Dr. Pierre Nehlig (CGMW), and Prof. Roland Oberhänsli (CGMW) **and requires** them to enlarge the number of participating countries of the Middle East, and

38. **expresses** its satisfaction for the preparation of a preliminary draft version of the *International Magmatic Map of the Middle-East*, and

SUBCOMMISSION FOR NORTHERN EURASIA

39. **appreciates** the good progress achieved by the *TeMAr (Tectonic Map of the Arctic)* international working group led by Vice-President Oleg V. Petrov in the compilation of the *Tectonic Map of the Arctic at 1:5M scale*, the first draft of which was displayed at the 34th IGC and **informs** that the minutes of the last working group meeting held jointly with the Commission in Vienna on April 24, 2012 will be published in the websites of CGMW and VSEGEI by September 1, 2012, and

40. **expresses its satisfaction** with the well co-ordinated work of the Subcommission for Northern Eurasia, the the Subcommission for Antarctica, and the Subcommission for Tectonic Maps, and **thanks** the participation and support of the project on the *Tectonic Map of Arctic (TeMAr)* by the geological surveys of Russia, Norway, and other CIS-Arctic countries, as well as France, Germany, and Austria, and **is particularly grateful** to the head of the Geological Survey of Austria, Dr. Peter Seifert for his hospitality and assistance in hosting the workshop in Vienna, and

41. **expresses** its approval to the Geological Survey of Norway and other participants of the project *Atlas of geological maps of Circum-Polar Arctic at 1:5M scale* for initiating the compilation of the *Metallogenic Map of the Arctic* and **is satisfied** with the fact that the first workshop on the Metallogenic map was held last March in Toronto with the participation of geologists from Norway, Russia, Canada, the USA, Sweden, and the second workshop is to be held this November in Copenhagen, and

42. **approves** the initiative of the Subcommissions for Northern Eurasia, South and East Asia and the Subcommission on Tectonic Maps to start the compilation of the *1:5M International Tectonic Map of Asia (ITMA 5000)* in connection with the completion of the basic digital geological map of Asia *(IGMA 5000),* and

SUBCOMMISSION FOR AUSTRALIA-OCEANIA

43. **welcomes** Dr. Richard Blewett from Geoscience Australia, as new CGMW Vice-President for the Subcommission of Australia-Oceania , and

44. **thanks** Dr. Ian Lambert for its endeavour and assistance in the preparation of the General Assembly hosted by this IGC 34, and

SUBCOMMISSION FOR ANTARCTICA

45. **congratulates** Dr. Garrick. E. Grikurov and Dr. German Leitchenkov for the compilation and publication of the *Tectonic Map of Antarctica* in time for the IGC 34, and

46. **appreciates** the preparation of a booklet of explanatory notes on the *Tectonic Map of Antarctica* to be ready for the next General Assembly (Paris 2014), and

proposés pour faire partie du groupe de travail de cette carte: le Dr. Jalil Ghalamghash (GSI) ; le Dr. Abdollah Saidi, (GSI) ; Mme Marzieh Esterabi Ashtiani (GSI) ; M. Morteza Khalatbari (GSI) ; le Dr. Nehemia Kheirkhah (GSI) ; Mme Donald Hald (GSI) ; M. Omid Ardebili (GSI) ; le Dr. Nazim Imamverdiev (Université d'état de Bakou, Azerbaïdjan) ; le Dr. Gevorg Navasardyan (Académie Nationale des Sciences, Arménie) ; la Dr. Nino Sadradze (Institut de Géologie Alexandre Janelidze, Tbilissi, Géorgie) ; le Dr. Ender Sarifakioglu (MTA, Turquie) ; le Dr. Pierre Nehlig (CCGM) et le Prof. Roland Oberhänsli (CCGM) et leur **demande** d'élargir le nombre des pays du Moyen-Orient participants, et

38. **exprime** sa satisfaction pour la préparation d'une version de l'avant-projet de la *Carte Magmatique du Moyen-Orient*, et

SOUS-COMMISSION POUR L'EURASIE DU NORD

39. **apprécie** le progrès substantiel réalisé par le groupe de travail international *TeMAR*, sous la direction du Vice-Président Oleg V. Petrov, dans la compilation de la *Carte Tectonique des régions Arctiques au 1:5M*, dont la première maquette a été présentée lors du 34ème CGI, et informe que le procès-verbal de la dernière réunion de groupe de travail, tenue à conjointement avec le congrès EUG à Vienne le 24 avril 2012, sera mis en ligne sur les sites Web de la CCGM et du VSEGEI le 1er septembre 2012, et

40. **exprime** sa satisfaction pour la bonne coordination du travail des Sous-commissions suivantes : Eurasie du Nord, Antarctique et Cartes Tectoniques et remercie pour leur soutien au projet de *Carte Tectonique des Régions Arctiques* (*TeMAR*) : les services géologiques de Russie, de Norvège et des autres pays de la CIS-Arctique, ainsi que la France, l'Allemagne et l'Autriche et est **particulièrement reconnaissante** au Directeur du Service géologique d'Autriche, le Dr. Peter Seifert, pour son hospitalité et son aide lors de l'accueil la réunion de travail à Vienne, et

41. **exprime** sa reconnaissance au Service géologique de Norvège et aux autres participants au projet « *Atlas au 1:5M des cartes géologiques de l'Arctique circumpolaire* » pour le lancement de la compilation de la *Carte Métallogénique de l'Arctique* et est satisfaite par le fait que le premier atelier sur la carte métallogénique se soit tenu en mars dernier à Toronto, avec la participation de géologues de Norvège, de Russie, du Canada, des Etats-Unis et de Suède, le deuxième atelier devant se tenir en novembre à Copenhague, et

42. **approuve** l'initiative des Sous-commissions pour l'Eurasie du Nord, de celle pour l'Asie du Sud et de l'Est et de la Sous-commission des Cartes Tectoniques de commencer la compilation de la *Carte Tectonique Internationale de l'Asie au 1:5M (ITMA 5000)* dans le cadre de l'achèvement de la Carte géologique numérique de l'Asie (*IGMA 5000*), et

SOUS-COMMISSION POUR AUSTRALIE-OCÉANIE

43. **accueille** le Dr. Richard Blewett de Geoscience Australia en tant que nouveau Vice-président de la CCGM pour la Sous-commission d'Australie-Océanie, et

44. **remercie** le Dr. Ian Lambert pour ses efforts et son aide dans la préparation de l'Assemblée générale accueillie par le 34ème CGI, et

SOUS-COMMISSION POUR L'ANTARCTIQUE

45. **félicite** le Dr. Garrick. E. Grikurov et le Dr. German Leitchenkov pour la compilation et la publication de la *Carte Tectonique de l'Antarctique* à temps pour le 34ème CGI, et

46. **apprécie** la préparation d'un livret de notes explicatives de la *Carte Tectonique de l'Antarctique* qui sera prêt pour la prochaine Assemblée Générale (Paris 2014), et

THEMATIC SUBCOMMISSIONS

SUBCOMMISSION FOR TECTONIC MAPS

47. **thanks** Academician Yury Leonov for his many years excellent activity (more than 30 years) in the Subcommission for Tectonic Maps, first as Secretary General and then as the President for the last 20 years (1992-2012), and **remembers** that under his leadership were carried out the World famous *International Tectonic Map of the World* (1982) and the *International Tectonic map of Europe at the 1:5M scale* (3rd edition, 1996) and that he was the initiator of the compilation of the first *International Tectonic map of Asia*, one of the largest CGMW projects; and also **thanks** Mrs Anna Leonova (Vasilchuk) – Chief-cartographer – for her direct participation in preparing the publication of the maps carried out by the Subcommission for Tectonic Maps, and
48. **supports** the participation of the Subcommission for Tectonic Maps in the new CGMW project *International Tectonic map of South and East Asia at 1:10M* scale proposed by the Subcommission for South and East Asia under the leadership of Academician Ren Jishun , and
49. **recommends** to identify participants for restarting the CGMW Project of the *International Tectonic Map of Asia – ITMA-5000* on the basis of the *International Geological Map of Asia – IGMA-5000* – together with Dr. Jin Xiaochi – Secretary General of Subcommission for South and East Asia, during the visit of Dr. Igor Pospelov to China in next September-October 2012, and
50. **proposes** to prepare a time table for the realization of the *ITMA* project for the next CGMW General Assembly in February 2014 , and
51. **acknowledges** the presentation by Dr. Lêda Fraga (CPRM) of the draft nearly completed of the *Tectonic Map of South America at 1:5 M scale*, and **recommends** its publication soon after its review, and

SUBCOMMISSION FOR METALLOGENIC MAPS

52. **welcomes** the preparation of the *GIS Metallogenic Map of Europe* compiled by Dr. Sergei Cherkasov and **expects** its publication and presentation at the next General Assembly in Paris 2014, and
53. **acknowledges** the completion of the second edition of the *GIS Largest Mineral Deposits of the World* compiled by Academician Dmitri Rundqvist and his group, in cooperation with the Russian-French Metallogenic Laboratory and **expects** its release during the next General Assembly in Paris 2014, and
54. **congratulates** Dr. Ali Aghanabati and the Geological Survey of Iran for the publication of the *Metallogenic Map of the Middle East at 1:5M* following the CGMW standards and **suggests** the publication of the explanatory text for its presentation during the next General Assembly in Paris 2014, and
55. **appreciates** the progress made by the Geological Survey of Argentina (SEGEMAR) in the preparation of the educational booklet *Mineral Resources and Environment* and **expects** its publication before the next General Assembly in Paris 2014, and
56. **acknowledges** the preparation of the preliminary draft of the *World Map of the Mineral Resources of the Oceans at 1:25M* and **asks** Academician Pei Rongfu to present a final draft before the next General Assembly in Paris 2014, and
57. **appreciates** the advances made in the compilation of a *Metallogenic Map of Asia at 1:5M* by Academician Pei Rongfu and **expects** the preparation of a final draft produced in close liaise with the Subcommission for East and South Asia and the *IGMA* coordination team, for its presentation during the next General Assembly in Paris 2014, and

SOUS-COMMISSIONS THÉMATIQUES

SOUS-COMMISSION POUR LES CARTES TECTONIQUES

47. **remercie** l'Académicien Iouri Leonov pour ses nombreuses années d'excellente activité (plus de 30 ans) à la Sous-commission pour les Cartes Tectoniques, tout d'abord comme Secrétaire Général, puis comme Président pour les 20 dernières années (1992-2012) et, **se souvient** que, sous sa direction, ont été réalisées les célèbres *Carte Internationale Tectonique du Monde* (1982) et la *Carte Internationale Tectonique de l'Europe* (3ème édition, 1996) et qu'il a été l'initiateur de la compilation de la première *Carte Tectonique Internationale de l'Asie* comme l'un des plus importants projets CCGM ; et remercie aussi Mme Anna Leonova (Vasilchuk) - chef-cartographe- pour sa participation directe dans la préparation de la publication des cartes réalisée par la Sous-commission pour les Cartes Tectoniques, et
48. **supporte** la participation de la Sous-commission pour les Cartes Tectoniques dans le nouveau projet CCGM de *Carte Tectonique Internationale de l'Asie du Sud et de l'Est au 1:10M* proposée par la Sous-commission pour l'Asie du Sud et de l'Est sous la direction de l'académicien Ren Jishun, et
49. **recommande** d'identifier les participants pour relancer le projet CCGM de la *Carte Tectonique Internationale de l'Asie-ITMA-5000* sur la base de la *Carte Géologique Internationale de l'Asie-IGMA-5000* avec le Dr. Jin Xiaochi, Secrétaire général de la Sous-commission pour l'Asie du Sud et de l'Est, au cours de la visite du Dr. Igor Pospelov en Chine en septembre - octobre 2012 prochain, et
50. **propose** d'établir un calendrier pour la réalisation du projet *ITMA* pour la prochaine Assemblée générale de la CCGM en février 2014, et
51. **prend acte** de la présentation par la Dr. Lêda M. Fraga (CPRM) de la maquette quasi-complète de la *Carte Tectonique de l'Amérique du Sud au 1:5 M* et **recommande** sa publication aussitôt après son examen, et

SOUS-COMMISSION POUR LES CARTES MÉTALLOGÉNIQUES

52. **accueille** avec intérêt la préparation du SIG de la *Carte Métallogénique de l'Europe compilé* par le Dr. Sergei Cherkasov et **attend** sa publication et sa présentation à la prochaine Assemblée Générale en 2014 à Paris, et
53. **reconnaît** l'achèvement de la deuxième édition du SIG « *Les plus Importants Gisements Miniers du Monde* » compilé par l'académicien Dmitri Rundqvist et son équipe, en collaboration avec le Laboratoire de Métallogénie franco-russe et **attend** sa disponibilité pour la prochaine Assemblée Générale en 2014 à Paris, et
54. **félicite** le Dr. Ali Aghanabati et le Service Géologique d'Iran pour la publication de la *Carte Métallogénique du Moyen-Orient au 1:5 M* selon les normes de la CCGM et **suggère** la publication du texte explicatif pour sa présentation au cours de la prochaine Assemblée Générale en 2014 à Paris, et
55. **apprécie** les progrès réalisés par le Service Géologique et Minier d'Argentine (SEGEMAR) dans la préparation du livret pédagogique « *Ressources minières et environnement* » et **attend** sa publication avant la prochaine Assemblée Générale en 2014 de Paris, et
56. **constate** la préparation d'une maquette préliminaire de la *Carte Mondiale des Ressources Minérales Océaniques au 1:25 M* et **demande** à l'académicien Pei Rongfu de présenter une maquette finale avant la prochaine Assemblée Générale en 2014 à Paris, et
57. **apprécie** les progrès réalisés dans l'établissement d'une *Carte Métallogénique de l'Asie à 1:5 M* par l'académicien Pei Rongfu et **attend** l'élaboration d'une maquette finale réalisée en étroite liaison avec la Sous-commission pour l'Asie du Sud et de l'Est et avec l'équipe de coordination *IGMA*, pour sa présentation au cours de la prochaine Assemblée Générale en 2014 à Paris, et

58. **takes note** on the proposition made by Dr. Sergei Cherkasov about the map of *Mining and Metallurgical Wastes of Europe* and **encourages** the French Geological Survey (BRGM) and the Vernadsky State Geological Museum of RAS to produce an unified legend for anthropogenic accumulations of metals and minerals and to present a first draft of the map at the General Assembly in Paris 2014, and

SUBCOMMISSION FOR HYDROGEOLOGICAL MAPS

59. **congratulates** Dr. Willi Struckmeier for the finalization and publication of the 2012 edition of the *Map of River and Groundwater basins of the World at the 1:50M scale* in time for the 6th World Water Forum held in March 2012 in Marseilles, France, and

SUBCOMMISSION FOR HAZARD MAPS

60. **acknowledges** the holding in Tsukuba, Japan, 22-24 February 2012, of the first Workshop of *Asia-Pacific Region Global Earthquake and Volcanic Eruption Risk Management (G-EVER1)* aimed at discussing the means of reducing the risk of national and international disasters due to natural geohazard events like earthquakes, tsunamis, and volcanoes, and

61. **recommends** CGMW country members concerned to join the *Asia-Pacific Region Global Earthquake and Volcanic Eruption Risk Management (G-EVER1) Hub* (http://g-ever.org/en/links/index.html) through Dr. Eichi Tsukuda of the Geological Survey of Japan, AIST, the Subcommission of Natural Hazard Maps, and

SUBCOMMISSION FOR MAGMATIC AND METAMORPHIC MAPS

62. **approves** the Subcommission for Metamorphic maps be renamed "Subcommission for Magmatic and Metamorphic Maps", and

63. **acknowledges** the second version of a *Metamorphic Map of the Alps at the 1:1M scale* which complements a new *Tectonic Map of the Alps*, this task having been assigned to Prof. Romain Bousquet who finished his work in due time, and

64. **acknowledges** the near completion of the new booklet on the *Tectono-metamorphic and Geodynamic Evolution of the Alps* by Profs. Christian Robert and Romain Bousquet, and **expects** a printed version soon available prior to the next General Assembly in Paris 2014, and

65. **appreciates** information provided by President Roland Oberhänsli about the state of the art of the *Metamorphic Map of the Tethyan Eastern Mediterranean Realm* that some additional investigations were needed before designing a new tectonic base map and geodynamic concepts prior to completion of this map, and

66. **was informed** that the data compilation of the *Metamorphic Map of the World* has continued but up to date a sound concept to visualize superimposed metamorphic histories remains to be achieved, and

SUBCOMMISSION FOR SEAFLOOR MAPS

67. **congratulates** Dr. Peter Miles, as main author, and co-authors Dr. Philippe Bouysse (CGMW) and Dr. Kaiser de Souza (CPRM-Brazil) for the completion and successful publication of the CGMW *Structural Map of the Atlantic Ocean at 1:20M* together with a new Explanatory booklet covering the development of the whole Atlantic region including the Weddell Sea, and

68. **welcomes** on-going development by Dr. Peter Miles of a digital version of the *Structural Map of the Atlantic Ocean at 1:20M* compatible with shape file creation for wider integration into user compilations, particularly OneGeology,

58. **prend note** de la proposition du Dr. Serguei Cherkasov concernant la *Carte de déchets Miniers et Métallurgiques d'Europe* et **encourage** le Service géologique français (BRGM) et le Musée Vernadsky de l'Académie des Sciences de Russie (RAS) à réaliser une légende unifiée pour les accumulations anthropiques de métaux et de minéraux et de présenter un premier projet de la carte à l'Assemblée Générale en 2014 à Paris, et

SOUS-COMMISSION POUR LES CARTES HYDROGÉOLOGIQUES

59. **félicite** le Dr. Willi Struckmeier pour la finalisation et la publication de l'édition 2012 de la *Carte des Bassins des Fleuves et des Ressources en Eaux souterraines du Monde* au 1:40M à l'occasion du 6ème Forum Mondial de l'Eau réuni en mars 2012 à Marseille, France, et

SOUS-COMMISSION POUR LES CARTES D'ALÉA

60. **prend acte** de la tenue à Tsukuba, Japon, du 22 au 24 février 2012, du premier workshop sur la *Gestion globale des risques sismiques et volcaniques de la région Asie-Pacifique* (*G-EVER1*) et dont l'objectif est d'étudier les moyens à mettre en œuvre au niveau national et international pour réduire les risques dus aux aléas géologiques tels que les séismes, tsunamis, et éruptions volcaniques, et

61. **recommande** aux pays participants à la CCGM concernés de rejoindre (http://g-ever.org/en/links/index.html) le programme de *Gestion globale des risques sismiques et volcaniques de la région Asie-Pacifique (G-EVER1)* par l'entremise du Dr. Eichi Tsukuda du Service géologique du Japon AIST, la Sous-commission pour les cartes de risques naturels, et

SOUS-COMMISSION POUR LES CARTES MAGMATIQUES ET MÉTAMORPHIQUES

62. **approuve** de renommer la Sous-commission pour les cartes métamorphiques : "Sous-commission pour les cartes magmatiques et métamorphiques", et

63. **prend connaissance** de la deuxième version d'une *Carte métamorphique des Alpes au 1 :1M* qui complète une nouvelle *Carte Tectonique des Alpes*, réalisée par le Prof. Romain Bousquet, qui a terminé son travail dans les délais, et

64. **prend acte** de l'achèvement prochain de la nouvelle brochure sur et l'*Evolution Tectono-métamorphique et géodynamique des Alpes* par les Profs. Christian Robert et Romain Bousquet et **attend** une version imprimée bientôt disponible avant la prochaine Assemblée Générale en 2014 à Paris, et

65. **apprécie** les informations fournies par le Président Roland Oberhänsli sur l'état de la *Carte Métamorphique du Rameau Est-Tethysien en Méditerranée Orientale* où des recherches complémentaires sont nécessaires préalablement à la conception d'une nouvelle carte tectonique et de concepts géodynamiques avant l'achèvement de cette carte, et

66. **a été informée** que la compilation des données de la *Carte Métamorphique du Monde* se poursuit mais qu'un concept adéquat pour visualiser les histoires métamorphiques superposées reste à mettre au point, et

SOUS-COMMISSION POUR LES CARTES DES FONDS MARINS

67. **félicite** le Dr. Peter Miles, en tant qu'auteur principal, et les co-auteurs, le Dr. Philippe Bouysse (CCGM) et le Dr. Kaiser de Souza (CPRM-Brésil) pour la finalisation et publication de la *Carte Structurale de l'Océan Atlantique au 1:20M* avec un nouveau livret explicatif sur le développement de l'Atlantique y compris la mer de Weddell, et

68. **accueille avec intérêt** le développement en cours d'une version numérique de la *Carte Structurale de l'Océan Atlantique à 1:20M,* compatible avec la création d'un "fichier de polygones" pour une meilleure intégration dans les compilations des utilisateurs, en

planned to be available later in 2012, and

69. **thanks** colleagues in the CGMW Bureau and CGMW Subcommissions for their support to the authors, and contributions to the map, and

70. **congratulates** the authors of the *Geological and Morpho-Tectonic Map of the Mediterranean Domain at 1:4M scale* and accompanying publications, and

71. **recognises** collaboration with other subcommissions in coordinating map element colours with the *Structural Map of the Indian Ocean*, and

72. **acknowledges** collaboration with colleagues to integrate the Atlantic Map elements into a wider compilation, and

73. **recognises** the need to continue the compilation of a Pacific map set in the CGMW series, and **supports** its integration in a *World Ocean Map* GIS by contributing Atlantic map files, and

GEOPHYSICAL MAPS AND BOOKLET

74. **expresses** its satisfaction for the publication, since the last General Assembly, of the *Map of the Magnetic Declination in Europe* prepared by Drs. Gerald Duma, Barbara Leichter and the MagNetE Group (Magnetic Network in Europe), and

75. **expresses** its satisfaction for the publication of the *World Gravity Map at the scale of 1:50M* (3 sheets: Bouguer, Isostatic and Free air anomalies) and **congratulates** the authors, Drs. S. Bonvalot, G. Balmino, A. Briais, M. Huhn, A. Peyrefitte, N. Vales, R. Biancale, G. Gabalda, G. Moreaux, F. Reinquin and M. Sarrailh, and the Bureau Gravimétrique International (BGI), and

76. **congratulates** Drs. Mioara Mandea and Carmen Gaina, authors of the booklet: *The Changing faces of the Arctic : a glance at the top of the world from magnetic and gravity view*, and

77. **acknowledges** the continuous upgrade of the WDMAM (*World Digital Magnetic Anomaly Map*) project presented by Dr. Juha Korhonen, and

OTHER PROJECTS

78. **acknowledges** and **supports** the 7 year project of a database and map *The Gondwana Map Project – the geological map and the tectonic evolution of Gondwana* under the coordination of Prof. Renata da Silva Schmitt carried out at the Department of Geology – IGEO CCMN – Universidade Federal do Rio de Janeiro and **commits itself** to providing her with CGMW data and facilities to access to other relevant data, and

79. **acknowledges** the presentation of the database of the *Lithological Map of the World* by Dr. N. Moorsdorf and **encourages** the publication of the work on a printed form, and

GENERAL RESOLUTIONS

80. **encourages** the regional and thematic subcommissions to homogenize legends for all the new projects, and

81. **recalls** that every new project will have to follow the international standards of IUGS including CGI and INSPIRE in order to ensure the best correlation and diffusion of the maps and data.

THESE RESOLUTIONS WERE ADOPTED AT THE PLENARY SESSION OF THE GENERAL ASSEMBLY ON TUESDAY, AUGUST 7, 2012 AT THE 34TH IGC IN BRISBANE, AUSTRALIA. THE CGMW EXECUTIVE BUREAU THANKS ALL PARTICIPANTS IN THE GENERAL ASSEMBLY FOR THEIR PARTICIPATION AND CONTRIBUTIONS TO THE DISCUSSIONS.

particulier OneGeology, prévue pour être disponible plus tard en 2012, et

69. **remercie** les collègues du Bureau et des Sous-commissions de la CCGM pour leur soutien aux auteurs et les contributions à la carte, et

70. **félicite** les auteurs de la carte de l'*Environnement Géologique et de la carte Morpho-tectonique du Domaine Méditerranéen* à 1:4M et des publications associées, et

71. **reconnaît** la collaboration des autres Sous-commissions pour la coordination des couleurs des éléments de la carte avec la *Carte Structurale de l'Océan Indien*, et

72. **reconnaît** la collaboration avec les collègues pour l''intégration des éléments de la Carte de l'Atlantique dans une compilation plus large, et

73. **reconnaît** la nécessité de poursuivre l'élaboration d'une *Carte du Pacifique* dans la série CCGM et **soutient** son intégration dans le projet SIG de *Carte des Océans du Monde*, et

LIVRETS ET CARTES GÉOPHYSIQUES

74. **exprime** sa satisfaction pour la publication, depuis la dernière Assemblée Générale, de la *Carte de la Déclinaison* Magnétique en Europe préparé par les Dr. Gerald Duma, Barbara Leichter et le groupe MagNetE (Réseau Magnétique en Europe), et

75. **exprime** sa satisfaction pour la publication de la Carte Gravimétrique du Monde au 1 :50M (3 feuilles : Bouguer, anomalies isostatiques et Air libre) et félicite les auteurs, les Dr. S. Bonvalot, G. Balmino, A. Briais, M. Huhn, A. Peyrefitte, N. Vales, R. Biancale, G. Gabalda, G. Moreaux, F. Reinquin et M. Sarrailh, et le Bureau Gravimétrique International (BGI), et

76. **félicite** la Dr. Mioara Mandea et la Dr. Carmen Gaina, auteurs de la brochure : Le *Visage changeant de l'Arctique : un coup d'œil au sommet du monde du point de vue magnétisme et gravité*, et

77. **apprécie** la mise à jour continue du projet WDMAM (*Carte Numérique des Anomalies Magnétiques du Monde*) présenté par le Dr. Juha Korhonen, et

AUTRES PROJETS

78. **reconnaît** et **supporte** le projet pour 7 ans d'une base de données et d'une carte "*Projet de Carte de Gondwana – la Carte Géologique et l'Evolution Tectonique du Gondwana*" sous la coordination du professeur Renata da Silva Schmitt mené dans le Département de Géologie -IGEO CCMN-Université Fédérale de Rio de Janeiro et **s'engage** à lui fournir les données de la CCGM et les facilités pour accéder à d'autres données pertinentes, et

79. **reconnaît** la présentation de la base de données de la *Carte lithologique du monde* par le Dr. N. Moorsdorf et **encourage** la publication de ce travail sous forme imprimée, et

RÉSOLUTIONS GÉNÉRALES

80. **encourage** les Sous-commissions régionales et thématiques d'homogénéiser les légendes de tous les nouveaux projets, et

81. **rappelle** que chaque nouveau projet devra suivre les normes internationales de l'IUGS, y compris CGI et INSPIRE, afin d'assurer la meilleure corrélation des cartes et diffusion et des données.

CES RESOLUTIONS ONT ETE ADOPTEES A LA DERNIERE SESSION PLENIERE ***DE L'ASSEMBLEE GENERALE LE MARDI 7 AOUT 2012 AU 34EME CGI*** *A BRISBANE, AUSTRALIE. LE BUREAU EXECUTIF DE LA CCGM REMERCIE TOUS LES PARTICIPANTS A L'ASSEMBLEE GENERALE POUR LEUR PARTICIPATION ET LEUR CONTRIBUTION AUX DISCUSSIONS.*

ADDENDUM

Acknowledgements to the past and/or present CGMW Bureau members that were elected to the new 2012-2016 IUGS Board and congratulations namely to:

- Prof. Roland Oberhänsli, President for the Sub-commission for Magmatic and Metamorphic Maps, elected as IUGS President,
- Dr. Ian Lambert, past Vice-President for Australia-Oceania, elected as IUGS Secretary General

Deepest regrets are expressed for the disappearance of Dr. Abdolazim Haghipour, past CGMW Vice-President for the Middle East, who passed away on August 15, 2012 at the age of 73. During 32 years our esteemed colleague devoted the best of his efforts to the activities of the Commission and the promotion of geosciences in the Middle East.

ADDENDUM

Remerciements pour les membres du Bureau de la CCGM passés ou présents qui ont été élus au nouveau Conseil d'administration 2012-2016 de l'IUGS et félicitations à SAVOIR :

- le Prof. Roland Oberhänsli, Président de la Sous-commission pour les cartes magmatiques et métamorphiques, élu Président de l'UISG,
- le Dr. Ian Lambert, ancien Président pour la Sous-commission Australie-Océanie, élu Secrétaire général de l'UISG.

La Commission exprime ses plus profonds regrets pour la disparition du Dr. Abdolazim Haghipour, ancien Vice-président de la CCGM pour le Moyen-Orient, décédé le 15 août 2012 à l'âge de 73 ans. Pendant 32 ans, notre estimé collègue a consacré le meilleur de ses efforts pour les activités de la Commission et pour la promotion des Sciences de la Terre dans le Moyen-Orient.

CHANGES ON CGMW BUREAU MEMBERS

Submitted to the approval of CGMW Bureau Members and the ratification by the General Assembly on August 7th, 2013

Resignations and nominations			
	Outgoing	**Nomination**	
		Name	**Organisation/Country**
CGMW DEPUTY SECRETARY GENERAL ELECT		Pierre Nehlig	BRGM, France
Subcommissions			
SOUTH AMERICA Secretary General	Paula Cornejo	Jorge Gómez Tapias	Servicio geológico de Colombia
NORTH AMERICA Vice-President	Peter Lyttle	Marc St-Onge	Geological Survey of Canada
NORTH AMERICA Secretary General		Randall C. Orndorff	United States Geological Survey (USGS)
MIDDLE EAST Deputy Secretary General	Varoujan Sissakian	Dr. Saffa F. Fouad	Geological Survey of Iraq
OCEANIA AND AUSTRALIA Vice-President	Ian Lambert	Richard S. Blewett	Geoscience Australia
TECTONIC MAPS President	Yuri Leonov	Nikolay B. Kuznetsov	Tectonic Committee, Russian Academy of Sciences

Proposal to modify the name of the “Commission for metamorphic map” to “Commission for Metamorphic and Magmatic maps”.

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CGMW Plenary Assembly / *Assemblée Plénière de la CCGM*
Brisbane, 34th IGC August 7, 2012

List of maps displayed during sessions
(published or drafts)

Liste des cartes exposées pendant les séances
(publiées ou maquettes)

ASIA

CHINA
Institute of Geology, Chinese Academy of Geological Sciences

- *Geological Map of Asia*
  1:5 M, draft. Compiler: IGMA team

SOUTH AMERICA

CGMW maps

- *International Metallogenic Map of the Middle East*
  1:5 000 000, draft. Compiler: Dr. A. Aghanabati – CGMW S/C for Metallogenic Maps
- *International Geological Map of the Middle East*
  1:5 000 000, draft. Compiler: CGMW S/C for the Middle East
- *Tectonic Map of Africa*
  1:5 000 000, CGMW S/C for Africa
  J. P. Milesi, D. Frizon de Lamotte, G. de Kock, F. Toteu
- *Tectonic Map of South America*
  1:5 000 000. Draft. CPRM/U. Cordani, V. Ramos
- *GIS South America at 1:1 000 000 – Sheet NA 21 Macapá*
  Published map. CPRM/Brazil. C. Schobbenhaus

NORTH AMERICA

- *Mapa geológico de México at 1:2 000 000*

CGMW PROGRAMS

I. MAPS COMPLETED AND PUBLISHED SINCE THE PARIS GENERAL ASSEMBLY (FEBRUARY 2010)

- Tectonic Map of Africa at 1:5 M (2010)
- Magnetic and Gravimetric Anomaly Maps of the Circumpolar Arctic at 1:15 M (2010)
- Metallogenic Map of the Middle East at 1:5 M (2012)
- Tectonic Map of Antarctica at 1:20 M (2012)
- Tectonic Framework of the Alps at 1:1 M (2012)
- Structural Map of the Atlantic Ocean at 1:20 M (2012)
- Geological and Morpho-Tectonic Map of the Mediterranean domain at 1:4 M (2012)
- Map of Magnetic Declination in Europe at 1:15 M (2012)
- Word Gravity Map at 1:50 M, set of 3 maps, Bouguer, Isostatic & Free air anomalies (2012)
- Metamorphic Framework of the Alps at 1:1 M (2012)
- Morpho-bathymetry of the Mediterranean Sea at 1:4 M (2012)
- Map of river and groundwater basins of the World at 1:50 M (2012)
- International Geological Map of Asia at 1:5 M (2013)
- Structural map of the Arabian plate and surrounding areas at 1:4.6 M (2013)

BOOKLETS

- Changing faces of the Arctic. A glance at the top of the World from a magnetic and gravity view (2012)
- Seismic Atlas of the Messinian Crisis markers in the Mediterranean and Black Seas (2011)

II. CURRENT MAPPING PROGRAMS TO BE COMPLETED IN 2014-2016

GEOLOGICAL MAPS

- Geological Map of South America at 1:5 M (3rd edition)
- Geological Map of the Middle East at 1:5 M (2nd edition)
- Geological Map of Patagonia at 1:1 M

TECTONIC / STRUCTURAL MAPS

- Tectonic Map of South America at 1:5 M
- Tectonic Map of the Circumpolar Arctic at 1:5 M
- Tectonic Maps of the Central, Northern and Eastern Asia at 1:5 M
- Tectonic Map of ophiolite zones and sutures of the Central, Northern and Eastern Asia at 1:5 M
- Seismotectonic Map of Africa at 1:5 M

GEOPHYSICAL MAPS

- 2nd edition of the World Digital Magnetic Anomaly Map at 1:50 M
- Magnetic Anomaly Lineation and Tectonic Elements of the World at 1:50 M

STRUCTURAL MAPS OF THE OCEANS

- Structural Map of the Southern Pacific at 1:20 M
- Structural Map of the Caribbean at 1:20 M
- Structural Map of the Indian Ocean at 1:20 M (2nd edition)
- Structural synthesis at the scale of 1:10 M of theWorld's oceans to be carried out in digital format based on the published maps and current seafloor mapping projects. This data will be available for consultation in the OneGeology portal.

METALLOGENIC AND RESOURCES MAPS

- GIS of the Metallogenic Map of Europe at 1:5 M

III. OTHER PROGRAMS PROPOSED FOR THE PERIOD 2016-2018

- Updating of the 3rd edition of the Geological Map of the World at 1:25 M
- Geological and Mineral Resources Map of South America at 1:1 M scale and related databases (GIS South America 1:1 M)
- GIS of the International Quaternary Map of Europe
- Tectonic Map of Asia at 1:5 M
- Metamorphic Map of the World at 1:25 M
- 2nd edition of the Plate Tectonics from Space Map based on SKS wave measures.
- World Map of the Mineral Resources of the Oceans at 1:25 M
- Metallogenic Map of Asia at 1:5 M
- Lithological Map of the World at 1:25 M

BOOKLETS

- The changing face of Asia. Elements of Asian geology
- Mineral and environmental resources of the World
- Elements of Antarctic geology and tectonics

REGIONAL AND THEMATIC SUB-COMMISSIONS
SOUS-COMMISSIONS REGIONALES ET THÉMATIQUES

Summary of the activity of CGMW Sub-commissions for the period 2012-2013

Regional Sub-commissions

Africa

Progress of the project of the Sismotectonic Map of Africa (IGCP-OAGS join project, Prof. M. Meghraoui).

Sesion TS8.3 "Seismotectonics and crustal deformation in Africa" organized during the EGU General Assembly in Vienna - Austria (07-12 April, 2013). Alain-Pierre Tokam-Kamga, Atalay Ayele, Mustapha Meghraoui and Damien Delvaux.

North and Central America

Progress of the project of The Structural Map of the Carribean (Ph. Bouysse coord.).

Workshop in Cancun in the framework of the AGU of the Americas, May 2013.

South America

Completion of the project of the Tectonic Map of South America (U. Cordani, V. Ramos, C. Schobbenhaus). The GIS will probably be available in 2014.

Meetings on the Tectonic Map of South America:

- Buenos Aires on 12-16 March 2012. Representatives of CPRM, University of Sao Paolo, University of Buenos Aires and SEGEMAR (Geological and mining survey of Argentina).
- Rio de Janeiro on December 2013. Representatives of CPRM and SEGEMAR.

Antarctica

Preparation of the Explanatory booklet to the Tectonic map of the Antarctic (G. Leitchenkov, G. Grikurov).

Asia

6th Workshop in Beijing, April 3-5, 2012 on the International Geological Map of Asia at 1:5 M, devoted to the final review before the final edition of the map.

Release of the International Geological Map of Asia at 1:5 M scale in 12 sheets in October 2013.

Northern Eurasia

Progress of the project of the Tectonic Map of Arctic Regions (O. V. Petrov)

Scientific meeting in Saint-Petersburg on the occasion of the 130th anniversary of GEOLCOM-VSEGEI: "International cooperation in study of geological structure and mineral resources in major regions of the World". 31 January – 01 February 2012

Europe

Progress of the project of the International Quaternary Map of Europe (IQUAME) (K. Asch).

Workshop on the IQUAME project at CGMW headquarters (28-29 November 2013).

Middle-East

Progress of the International Quaternary Map of the Middle East (A. Saidi & M. Esteraby).
Second International Meeting on the Geosciences of the Middle East, Tehran, Iran, 3-5 May 2012.

Release in 2012 of the Metallogenic Map of the Middle East at 1:5 M (A. S. Aghanabati).Explanatory notes are under preparation.

Release of the Structural Map of the Arabian plate and surrounding areas (D. Frizon and P. Leturny).

Oceania

Actualization of the map of the Westernmost Pacific (IRD-CCGM).

Thematic Sub-commissions

A part of the following projects are carried out under in collaboration with the relevant regional Sub-commissions.

Metallogeny

Release of a educational booklet Mineral Resources, Mining and Environment (70 pages) The objective is to present unbiased synthesized information about mineral resources in their natural environment, the dependence of the society for minerals, the environmental impact of the mining activity and the responsible production (restoration and remediation). The English version is being prepared for 2014.

A binational metallogenic map involving the Andean Cordillera of Argentina and Chile is being finalized by the geological surveys of both countries in order to prepare a metallogenic GIS of the border area, covering 5,000 line kilometers, one of the longest borders of the world and involving one of the richest Cu, Mo, Au and Ag metallogenic provinces.

The South American geological surveys have relaunched the 1:1M maps of South America, including an extensive database of mineral resources which will be the basis for a future update of metallogenic map of the continent.

Geophysics

Translation into English and production of the DVD of the Atlas of the Earth's Magnetic Field (Alexei Gvishiani & Mioara Mandea).

Magmatic and metamorphic maps

Progress of the International Map of the Magmatism of the Middle East.

Hydrogeology

Completion of the last (25th) sheet of the Hydrogeological map of Europe at 1,5M scale, launched in the sixties (German science foundation, BGR, IAH, CGMW, UNESCO) (W. Struckmeier).

International Workshop on Groundwater Systems in Europe, on the occasion of thecompletion of the International HydrogeologicalMap of Europe (IHME) (Berlin, 22-23 August 2013).

Tectonic Maps

Progress of the project of the Tectonic Map of Arctic Regions (O. V. Petrov).

Workshop on TeMAr hosted by the Geological Survey of Austria (Vienna, 24 April 2012)

Metamorphic Maps

Progress of the Metamorphic map of the World project (R. Oberhänsli).

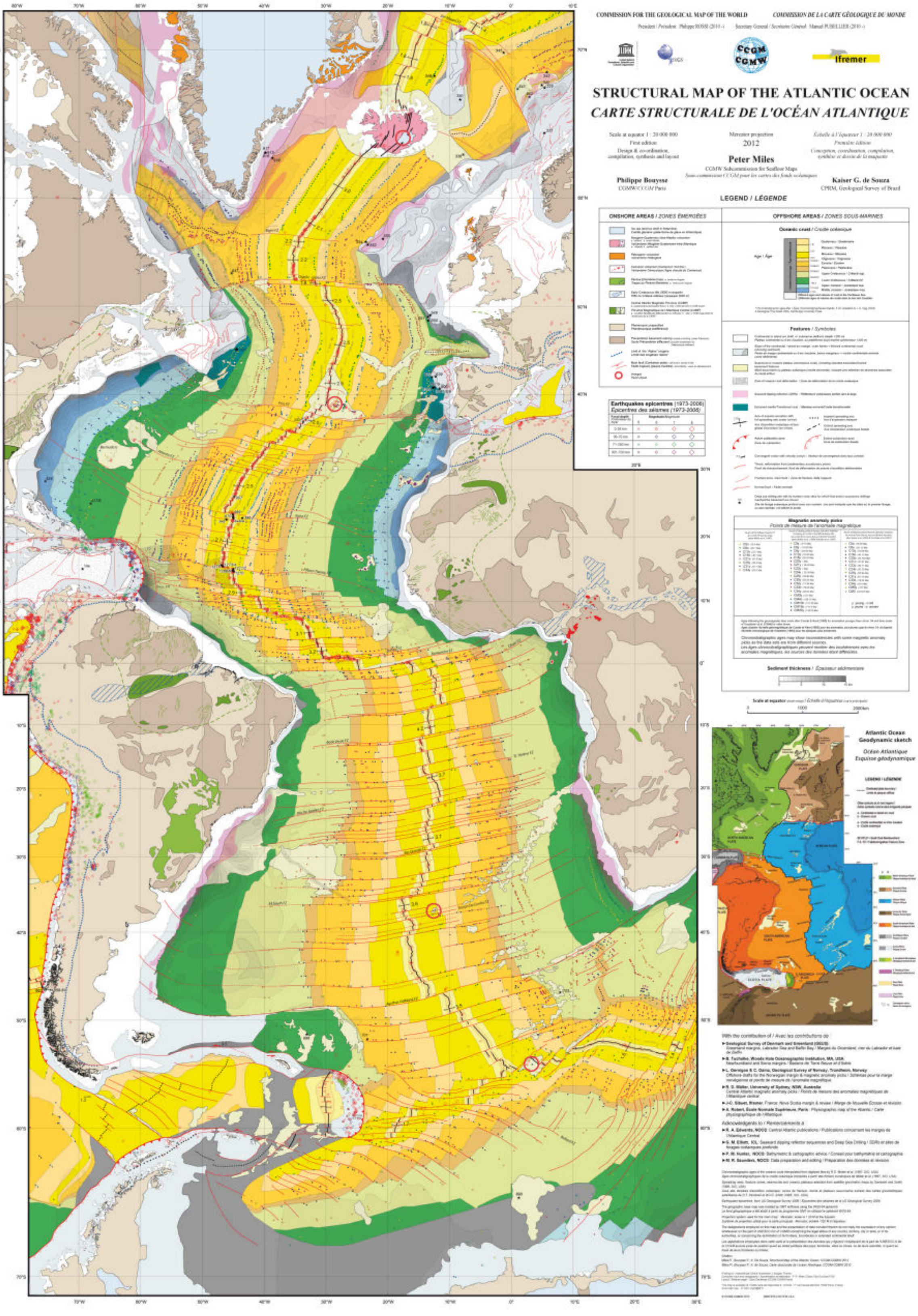
INTRODUCTORY NOTES OF CGMW PUBLICATIONS RELEASED IN 2012-2013

NOTES EXPLICATIVES DES CARTES CCGM PUBLIÉES ENTRE 2012 ET 2013

THE STRUCTURAL MAP OF THE ATLANTIC OCEAN

At the scale of 1:20 000 000 – First edition

2012



THE STRUCTURAL MAP OF THE ATLANTIC OCEAN

At the scale of 1:20 000 000 – First edition

2012

This map synthesizes the interpretation of geological and geophysical data compiled from oceanographic cruises spanning several decades and their published results.

The main structural map is presented in the framework of the continental structural features. The oceanic areas include the following parameters:

- The age of the oceanic crust in Epochs
- Magnetic anomaly chron picks where they have been observed or interpreted
- Seafloor spreading axes, active and fossil
- Transform faults and fracture zones
- Anomalous relief and subduction zones
- Seaward dipping reflector (SDR) volcanic sequence
- Earthquake epicentres and source depths
- Hotspots
- Deep ocean drilling sites - DSDP(IPOD), ODP and IODP - where basaltic basement or transitional crust was reached
- Sediment thickness - contours over oceanic crust and thinned continental crustal areas
- Crustal deformation zones
- Summary of continental geology related to the geodynamic evolution of the ocean.

The map is accompanied by a corresponding Geodynamic Sketch (inset in the map) and Physiographic Map (inset in the notes). The Geodynamic Sketch displays the tectonic plates pattern and illustrate the morphology and their juxtaposition.

This map of the Atlantic Ocean, issued for the 34th IGC in Brisbane in 2012, is the third one of this series, being an extension of, and replacement for, the 2008 North Atlantic map. It overlaps the adjoining Indian Ocean map. Publication of the map received financial support from UNESCO, the Geological Survey of Norway (2008) and IFREMER.

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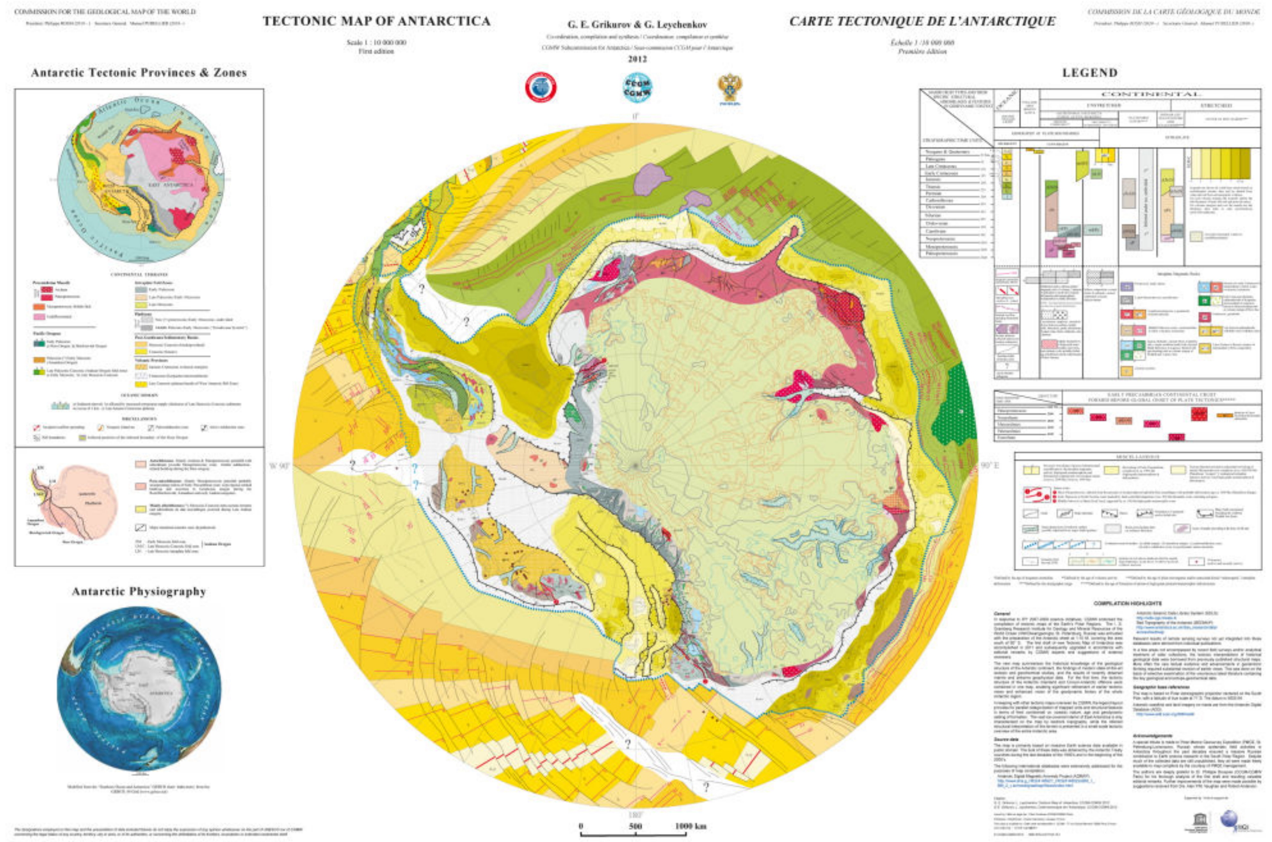
TECTONIC MAP OF ANTARCTICA

At the scale of 1:10 000 000

2012



COMPILATION HIGHLIGHTS

In response to IPY 2007-2009 science initiatives, CGMW endorsed the compilation of tectonic maps of the Earth's Polar Regions. The I. S. Gramberg Research Institute for Geology and Mineral Resources of the World Ocean (VNIIOkeangeologia, St. Petersburg, Russia) was entrusted with the preparation of the Antarctic sheet at 1:10 M, covering the area south of 60˚ S. The first draft of new Tectonic Map of Antarctica was accomplished in 2011 and subsequently upgraded in accordance with editorial remarks by CGMW experts and suggestions of external reviewers.

The new map summarizes the historical knowledge of the geological structure of the Antarctic continent, the findings of modern state-of-the-art isotopic and geochemical studies, and the results of recently obtained marine and airborne geophysical data. For the first time, the tectonic structure of the Antarctic mainland and Circum-Antarctic offshore were combined in one map, enabling significant refinement of earlier tectonic views and enhanced vision of the geodynamic history of the whole Antarctic region.
In keeping with other tectonic maps overseen by CGMW, the legend layout provides for parallel categorization of mapped units and structural features in terms of their continental vs. oceanic nature, age and geodynamic setting of formation. The vast ice-covered interior of East Antarctica is only characterized on the map by bedrock topography, while the inferred structural interpretation of this terrain is presented in a small-scale tectonic overview of the entire Antarctic area.

Source data

The map is primarily based on massive Earth science data available in public domain. The bulk of these data was obtained by the Antarctic Treaty countries during the last decades of the 1900's and in the beginning of the 2000's.

The following international databases were extensively addressed for the purposes of map compilation:

Antarctic Digital Magnetic Anomaly Project (ADMAP):
http://www.dna.g_Hlt324146021_Hlt324146022oBM_1_BM_2_v.ar/mararg/admap/News/index.html

Antarctic Seismic Data Library System (SDLS):
http://sdls.ogs.trieste.it/

Bed Topography of the Antarctic (BEDMAP):
http://www.antarctica.ac.uk//bas_research/data/access/bedmap/

Relevant results of remote sensing surveys not yet integrated into these databases were derived from individual publications.

In a few areas not encompassed by recent field surveys and/or analytical treatment of older collections, the tectonic interpretations of historical geological data were borrowed from previously published structural maps. More often the new factual evidence and advancements in geotectonic thinking required substantial revision of earlier views. This was done on the basis of selective examination of the voluminous latest literature containing the key geological and isotope-geochemical data.

Geographic base references

The map is based on Polar stereographic projection centered on the South Pole, with a latitude of true scale at 71°S. The datum is WGS 84.

Antarctic coastline and land imagery on insets are from the Antarctic Digital Database (ADD):
http://www.add.scar.org:8080/add/

Acknowledgements

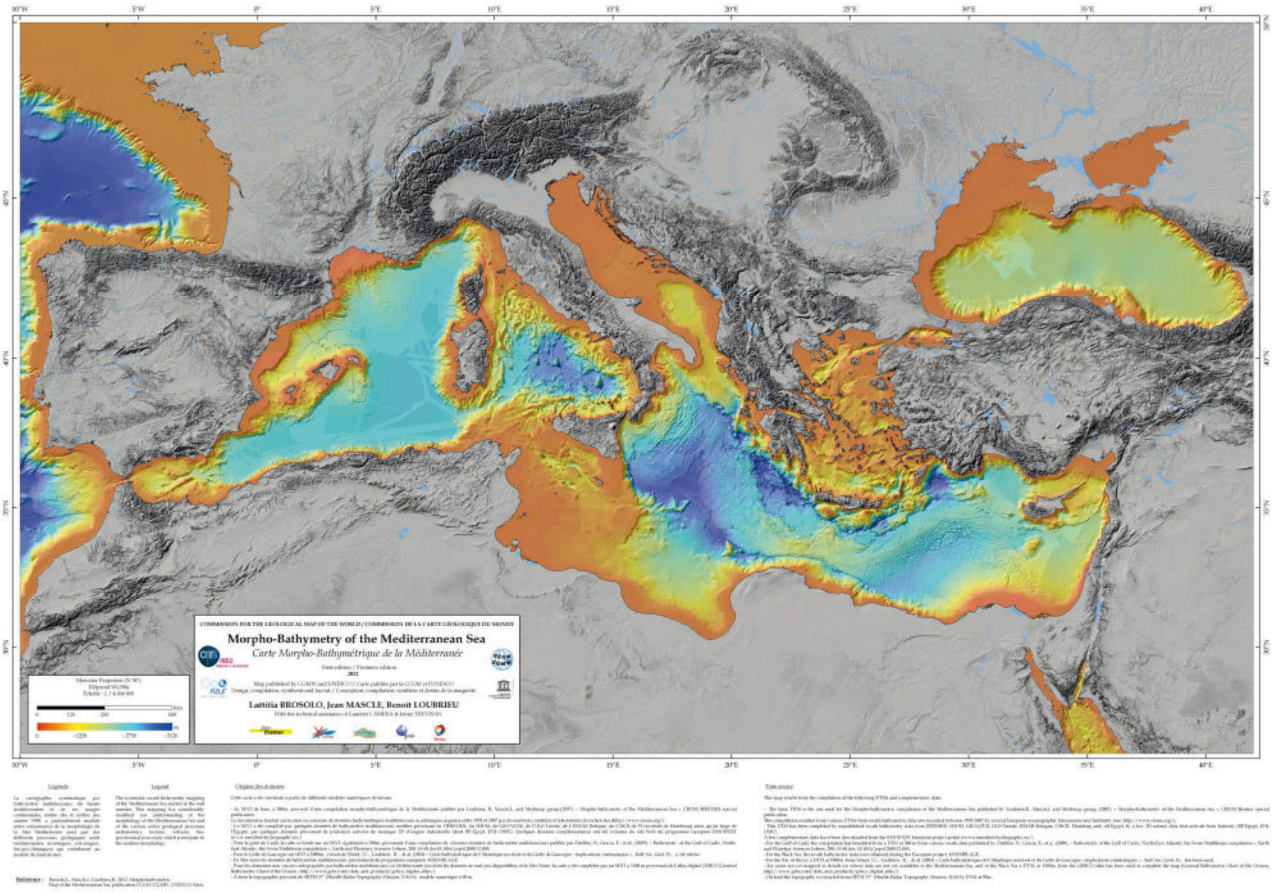
A special tribute is made to Polar Marine Geosurvey Expedition (PMGE, St. Petersburg-Lomonosov, Russia) whose systematic field activities in Antarctica throughout the past decades ensured a massive Russian contribution to Earth science research in the South Polar Region. Despite much of the collected data are still unpublished, they all were made freely available to map compilers by the courtesy of PMGE management.

The authors are deeply grateful to Dr. Philippe Bouysse (CCGM-CGMW Paris) for his thorough analysis of the first draft and resulting valuable editorial remarks. Further improvements of the map were made possible by suggestions received from Drs. Alan P.M. Vaughan and Robert Anderson.

MORPHO-BATHYMETRY MAP OF THE MEDITERRANEAN

At the scale of 1:4 000 000

2012



First of the two maps devoted to the Mediterranean published in 2012, CGMW released in April the *Morpho-Bathymetric Map of the Mediterranean Sea at the 1:4,000,000 scale* presenting a complete view from the Gulf of Cadiz and western approaches of the Gibraltar Strait to the eastern shores of the Black Sea.

This new map follows a previous Morpho-bathymetric synthesis of the Mediterranean Sea co-published, in 2008, by CIESM and IFREMER. It integrates the same set of swath bathymetric data plus the following additional data:

(1) Unpublished swath bathymetric records from various sources including IFREMER, SHOM, GEOAZUR, OGS-Trieste, ISMAR-Bologna, CMCR- Hamburg, and locally first arrivals from 3D seismic data from the oil industry;

(2) A bathymetric compilation of the Gulf of Cadiz published by Zitellini, Gracia, et al., (2009);

(3) A few complementary data from the EMODNET European project portal;

(4) Swath bathymetric data in the Back Sea provided by the East European Craton (EEC) project Assemblages.

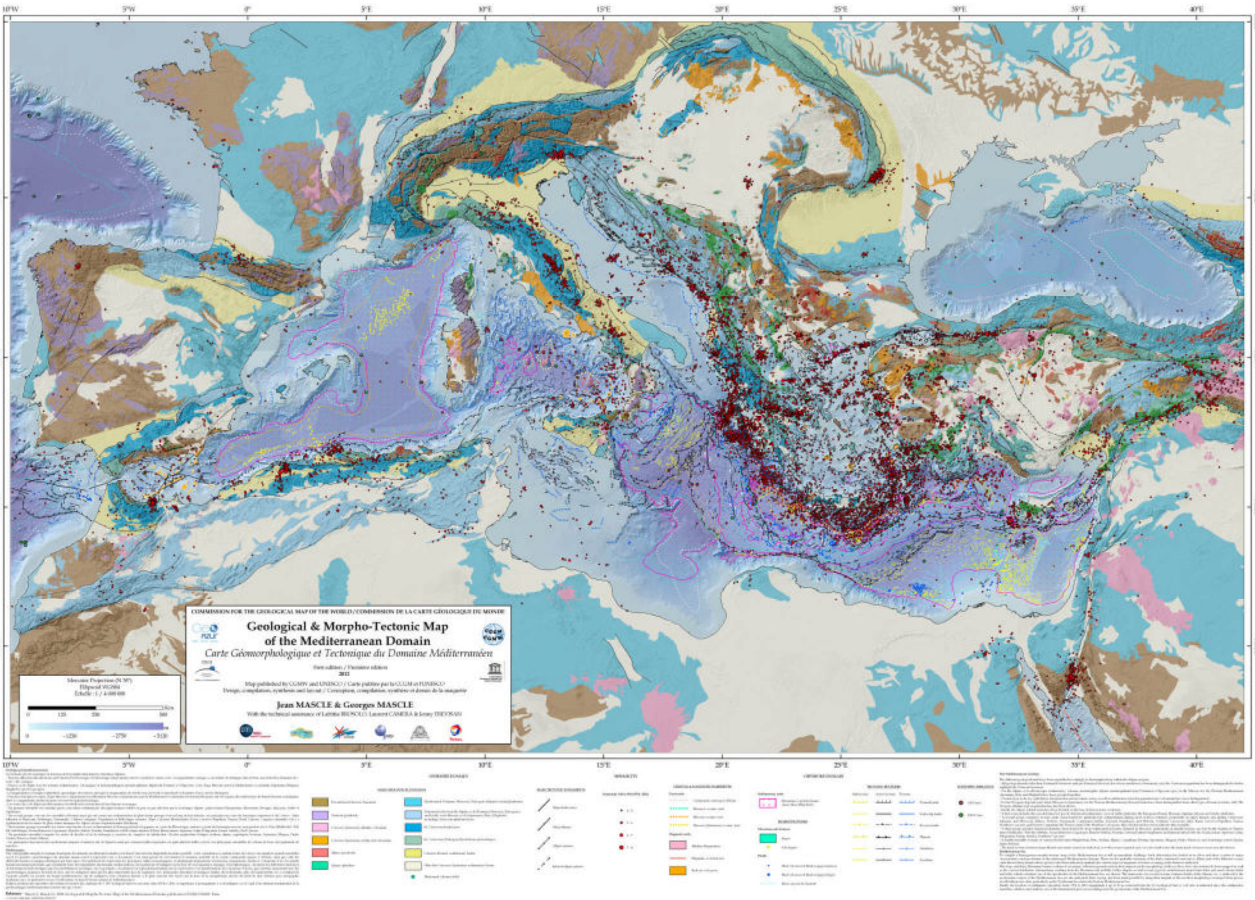
The Digital Terrain Model (DTM), at 500 m, has been mixed with a DTM at 1500 m from the GEBCO Atlas (General Bathymetric Chart of the Oceans) to illustrate the morphology of the Mediterranean Sea as a whole together with the onshore surrounding topography as extracted from SRTM 33'' (Shuttle Radar Topography Mission, NASA) with a DTM at 90 m.

The resulting map displays a contrasting view between the continental reliefs, in shades of grey, and the Mediterranean seafloor morphology revealed by a well-suited colour grading scale. This map will be completed by a Geological and Morpho-Tectonic Map of the Mediterranean, at the same scale, to be released in July 2012 (authors Jean Mascle & Georges Mascle)

GEOLOGICAL AND MORPHO-TECTONIC MAP OF THE MEDITERRANEAN DOMAIN

At the scale of 1:4 000 000

2012



In June 2012 CGMW published a second map of the Mediterranean, the *Geological and Morpho-Tectonic Map of the Mediterranean domain*.

This synthesis was constructed by J. Mascle, (DR CNRS emeritus, at Geoazur), for the marine domain, and G. Mascle (formerly Professor at Grenoble University), for the surrounding peri-Mediterranean geology, with the technical help of DT-Insu (MISTRALS program).

This new map is aiming to show the main geological/geophysical characteristics of the Mediterranean basin as they were extracted and synthesized from many publications and unpublished data within a simplified surrounding geological framework.

Onshore, the geodynamic of the Mediterranean area being intimately related to the evolution of the Alpine realm, the different geological units were assembled accordingly to their implications within the Alpine orogenic evolution.

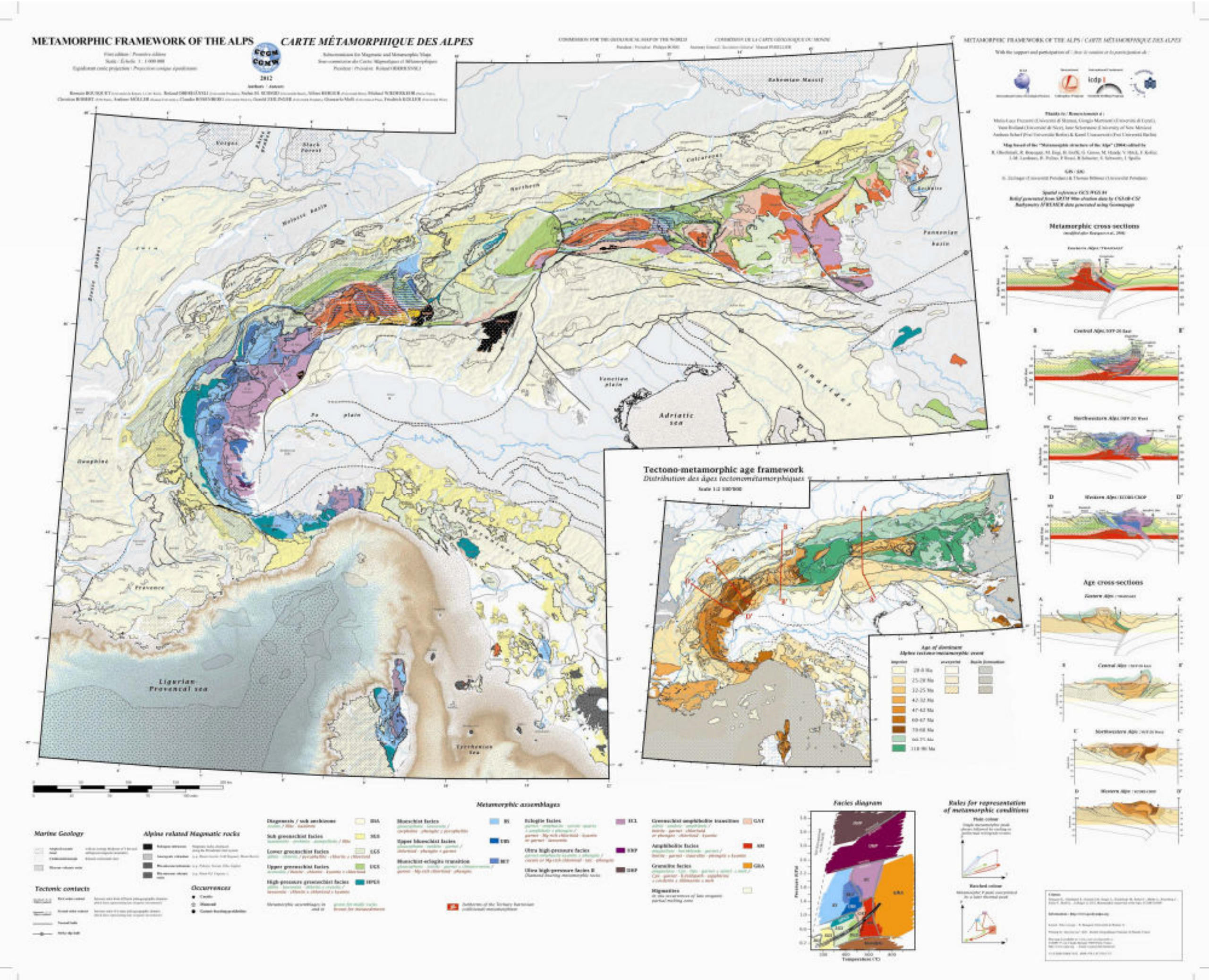
Offshore, major characteristics and specificities of the submerged Mediterranean domain were selected, such as the extension of the thick continental crust (up to 20km) and of the different oceanic crust-floored deep basins whose age were also indicated. The various deep, and thick, Messinian basins were identified and mapped as well as their salt-induced deformations (diapirs or/and various gravity tectonics); mud volcano fields, which constitute one of the specificities of the Mediterranean Sea, are shown. The main active (or recently active) tectonic features, generated by the geodynamic context of the Mediterranean Sea, are also indicated. Finally, the location of earthquake epicentres (magnitude 4 up to 8), from 1974 to 2011, is indicated since the earthquakes underline one of the fundamental processes resulting from the Geodynamic of the Mediterranean Sea and the various plates and microplates boundaries

Built under ArcGis, this map, which results from the superposition of more than 30 distinct layers, is the first one ever published and concerning the whole Mediterranean domain.

METAMORPHIC FRAMEWORK OF THE ALPS

At the scale of 1:1 000 000

2012



From Corsica to the Vienna basin (Austria), the Metamorphic Framework of the Alps, proposes a synthesis at the one million scale, of the different metamorphic conditions recorded in the course of the Alpine orogenesis since the Cretaceous. This synthesis is both an update and a reworking of the *Metamorphic Structure of the Alps* published in 2004 by R. Oberhänsli et al. Associated to the main map, a set of additional documents provides supplementary information:

- on the different stages of the building of the Alpine range in a map at the scale of 1:2 500 000 of the tectono-metamorphic ages framework;

- on the depth distribution of the metamorphic units on the four Alpine seismic cross-sections (TRANSALP, NFP20 East, NFP20 West, ECORS-CROP);

- on the interpretations, in terms of the tectono-metamorphic ages, of these four cross-sections;

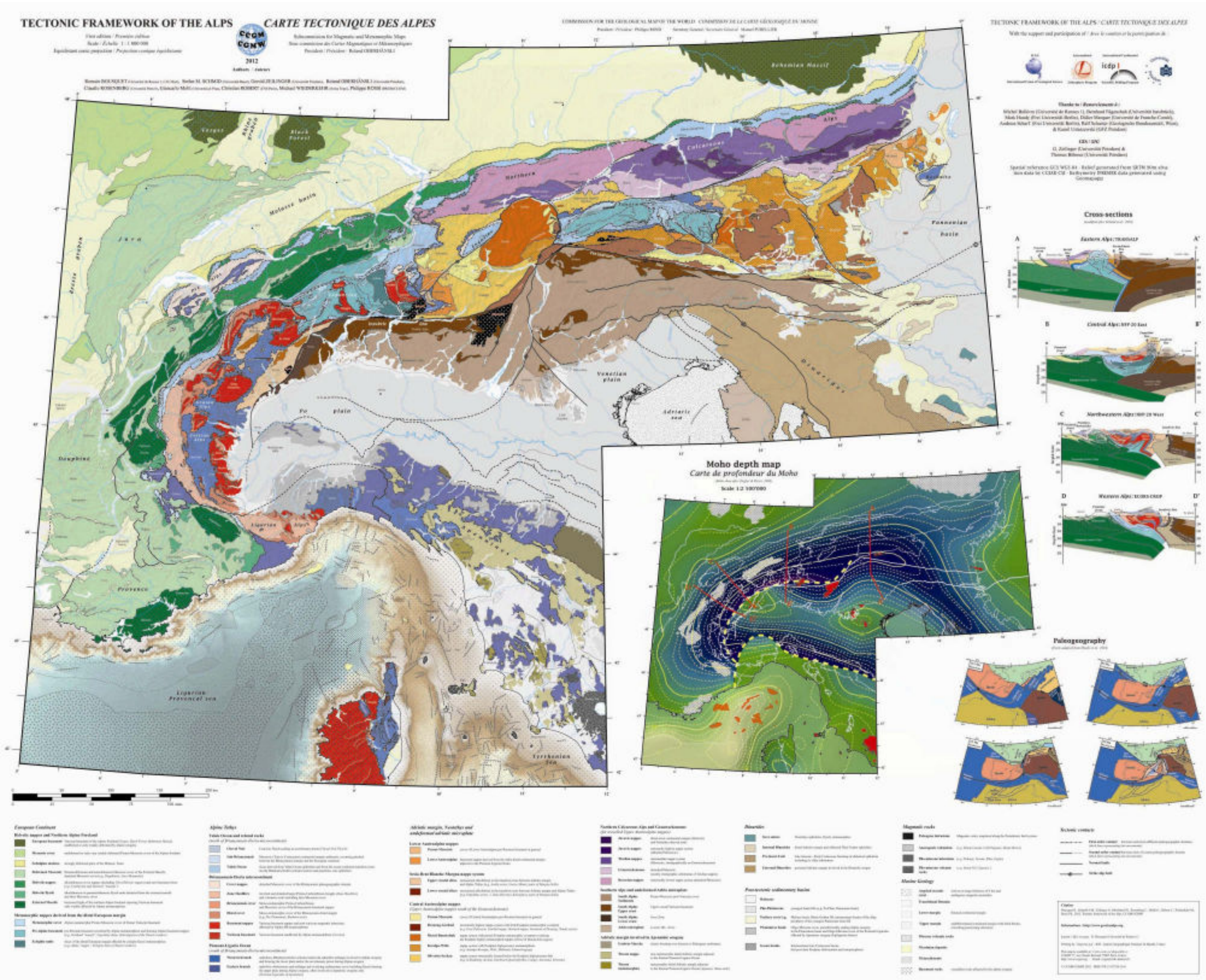
- on the metamorphic facies recognised in the Alps, with a description of the different mineralogical associations according to the chemistry of the rocks.

This accomplishment, as well as that of the Tectonic Framework of the Alps (2012), comes within the scope of a general synthesis of geological, petrological and geophysical knowledge acquired on the Alps. With this in mind, this work reflects a state of the art at a given moment, giving cause to a number of questions, and constituting therefore only a fundamental element for future discussions. From this perspective, as the Metamorphic Structure of the Alps (2004), the Metamorphic Framework of the Alps proposes a global approach of this mountain chain.

TECTONIC FRAMEWORK OF THE ALPS

At the scale of 1:1 000 000

2012



This map is the first at the scale of one million that covers a domain spanning from Corsica up to the Vienna basin (Austria), and compiles the knowledge accumulated on the different Alpine units, their structural relationships and palaeogeographic origin. A set of complementary documents is associated to the main map in order to expand its context:

- an inset map of the Moho depth associated to the geological units;
- geological interpretations, at the lithospheric scale, of the four Alpine seismic cross-sections (TRANSALP, NFP20 East, NFP20 West, ECORS-CROP);
- palaeographic reconstructions of the Western Mediterranean at 131, 94, 35 and 20 Ma.

Based on a vast collection of data on the Alps gathered all along more than a hundred years, this compilation also takes into account most recent works (e.g. Schmid et al., 2004; Ziegler and Dèzes, 2006; Handy et al., 2010).

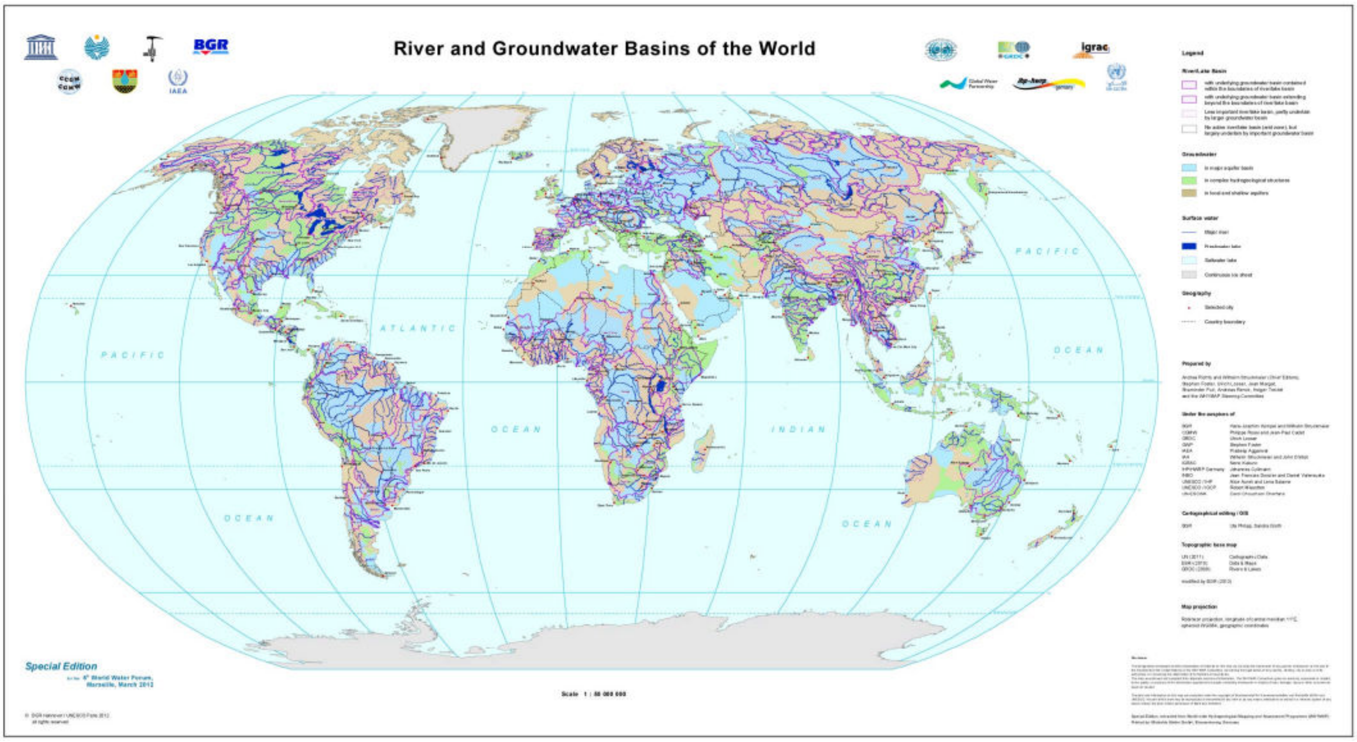
This accomplishment, as well as that of the Metamorphic Framework of the Alps (2012), comes within the scope of a general synthesis of geological, petrological and geophysical knowledge acquired on the Alps. With this in mind, this work is representative of a state of the art at a given moment, giving cause to a number of questions, and constituting therefore only a fundamental element for future discussions. From this perspective, the Tectonic Framework of the Alps proposes a global approach of this mountain chain.

More information is provided in this link: http://www.geodynalps.org

RIVER AND GROUNDWATER BASINS MAP OF THE WORLD

At the scale of 1:40 000 000

2012



This map is one of the products of the internationa **W**orld-wide **Hy**drogeological **M**apping and **A**ssessment **P**rogramme (WHYMAP). WHYMAP is a joint Programme of UNESCO, CGMW, IAH (International Association of Hydrogeologists), IAEA (International Atomic Energy Agency) and BGR (Federal Institute for Geosciences and Natural Resources, Germany). WHYMAP collects, compiles and collates groundwater-related hydrogeological information, at continental and global scales, to aid global discussion of water issues by making underground water resources more visible. To achieve this, it synthesizes the very large amount of hydrogeological mapping undertaken at regional and national level, and is gradually building a geographic information system (WHYMAP-GIS) in which groundwater data can be managed and visualising. Among its main aims are :

- Collecting information on groundwater ressources at the global scale.
- Widely diffuse this data through maps and online applications, such as global maps at the scale of 1:25 000 000, thematic maps at the 1:50 000 000 scale, small scale maps as part of papers published on the water theme and accessibility to the online application WHYMAP.
- Provide informative material to the world decision makers, in particular for the international discussions on water ressources.
    - World Water Assessment Programme (WWAP)
    - World Water Development Reports (WWDR)
    - World Water Forum
- Exchange data with other research and development programs around the world.

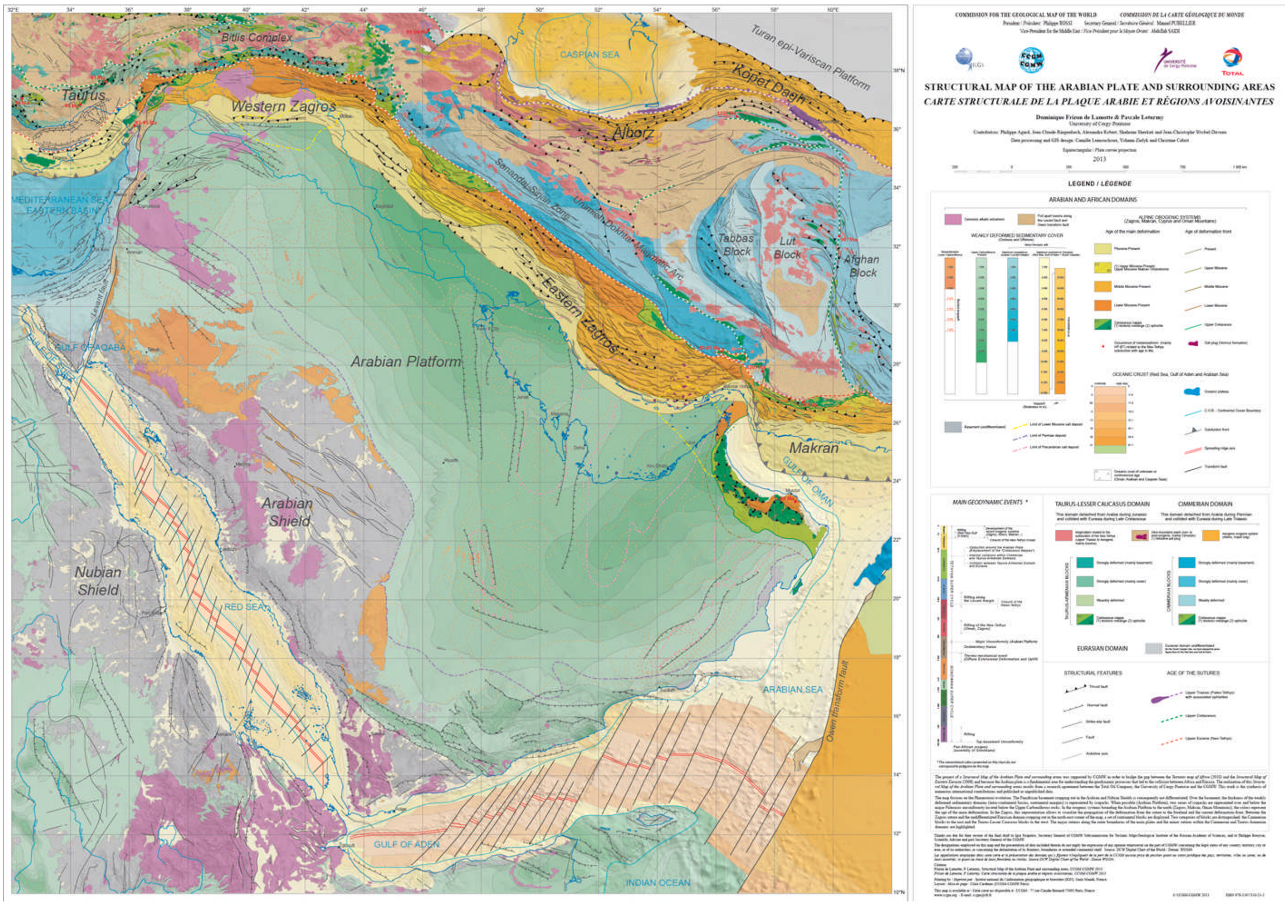
The printed version of this map is distributed by UNESCO, CGMW AND BGR. An internet based maps is avaialble, which combines WHYMAP data with an information system on national, regional and continental hydrogeological maps (WHYMIS). All products and services are accessible via the programe web site http://www.whymap.org

This edition at the 1:50 000 000 scale was prepared specially for the 6th Water Forum held in Marseille, France on March 2012.

STRUCTURAL MAP OF THE ARABIAN PLATE AND SURROUNDING AREAS

At the scale of 1:4 600 000

2013



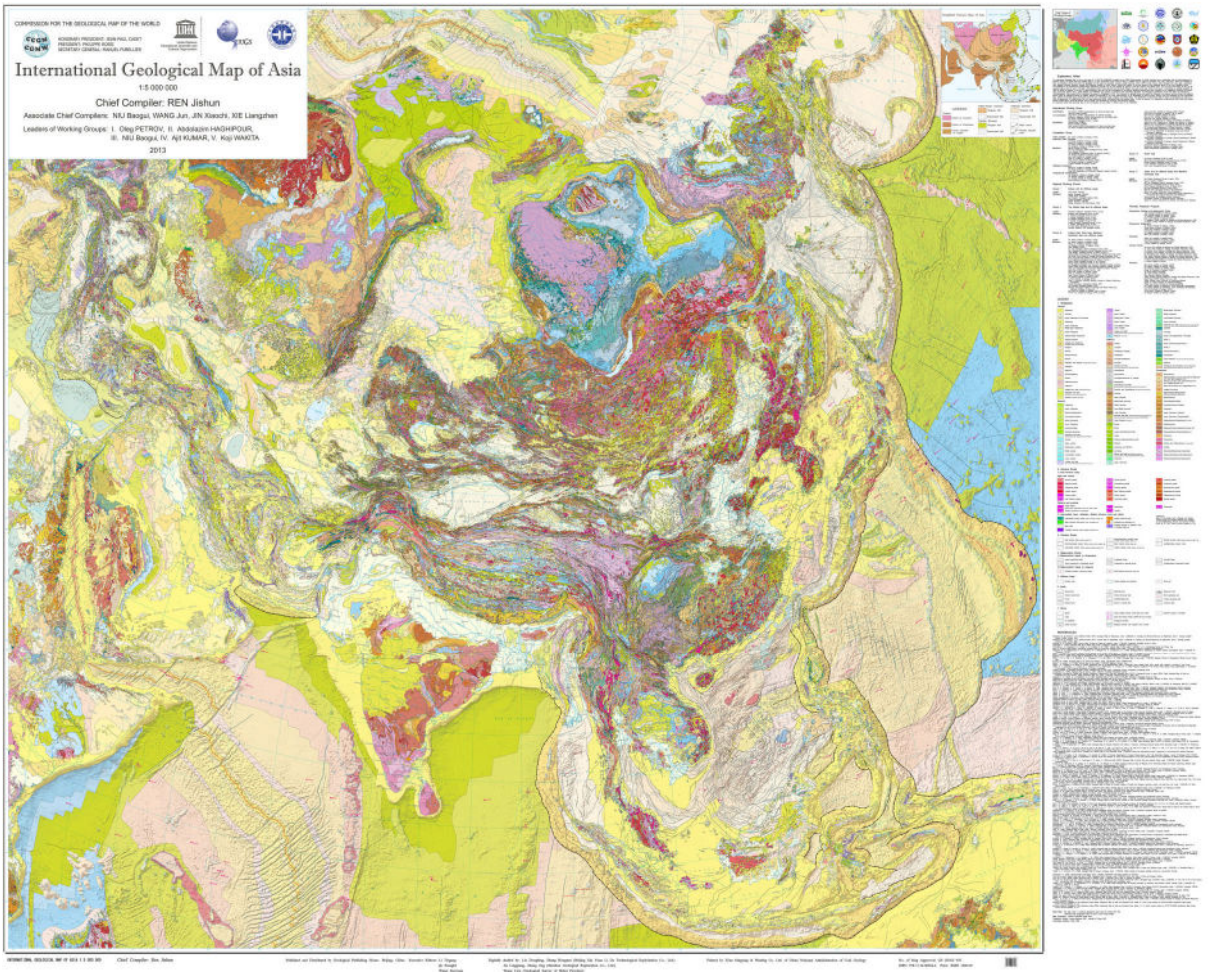
The project of a Structural Map of the Arabian Plate and surrounding areas was supported by CGMW in order to bridge the gap between the Tectonic map of Africa (2010) and the International Tectonic Map of Asia (in progress) and because the Arabian plate is a very critical area to understand the geodynamic processes which led to the collision between Africa and Eurasia. The realization of this Structural Map of the Arabian Plate and surrounding areas results from a research agreement between the Total Oil Company, the University of Cergy-Pontoise and the CGMW. The project was concluded thanks to the synthesis of numerous international contributions and from published or unpublished data.

The map focuses on the Phanerozoic evolution. The Panafrican basement cropping out in the Arabian and Nubian Shields is consequently not differentiated. Over the basement, the thickness of the weakly deformed sedimentary domains (intra-continental basins, continental margins) is represented by isopachs. When possible (Arabian Platform), two series of isopachs are represented over and beneath the major Paleozoic unconformity located below the Upper Carboniferous rocks. In the orogenic systems bounding the Arabian Platform to the north (Zagros, Makran, Oman Mountains), the colors represent the age of the main deformation. In the Zagros, this representation allows to visualize the propagation of the deformation from the suture to the foreland and the current deformation front. Between the Zagros suture and the undifferentiated Eurasian domain cropping out in the north-east corner of the map, a set of continental blocks are displayed. Two categories of blocks are distinguished: the Cimmerian blocks to the east and the Taurus-Armenian blocks to the west. The major sutures along the outer boundaries of the main plates and the minor sutures within the Cimmerian and Taurus-Armenian domains are also highlighted.

INTERNATIONAL GEOLOGICAL MAP OF ASIA (IGMA)

At the scale of 1:5 000 000

2013



The realization of a 1:5M *International Geological Map of Asia* (IGMA) was proposed by Academician Ren Jishun, from the Academy of Geological Sciences of China in Beijing, during the CGMW General Assembly held in Paris 2002, validated by the Bureau and adopted by the CGMW General Assembly held at the IGC 32 in Florence, August 2004.

The compilation of the 1:5 M scale *International Geological Map of Asia* (IGMA5000) under the aegis of CGMW and with the support of UNESCO, was carried out by the CGMW Subcommission for South and East Asia in conjunction with the Subcommissions for the Middle East, Northern Eurasia and Seafloor Maps, and the geological institutions of the participating countries (Cambodia, China, D.P.R. Korea, France, India, Indonesia , Iran, Iraq, Japan, Kazakhstan, Laos, Malaysia, Myanmar, Mongolia, Pakistan, the Philippines, R. Korea, Russia, Thailand and Vietnam). Substantial support to this project was given by the China Geological Survey, Sinopec Exploration and China National Petroleum Corporation.

In order to achieve this extensive synthesis, six workshops were organized in China by the Chinese Academy of Geological Sciences between 2005 and 2012.

– The 1st Workshop (Beijing, March 29-April 3, 2005) was aimed at discussing the general plan and standards of the map compilation. Among the resolutions adopted, resolution 17 stated: "*The CGMW will inform the Geological Surveys of all the countries in the sheet areas of the IGMA 5000, and asks them to supply their data to the regional coordinators, and also nominate a representative to interact with the regional working group. The regional Coordinators were requested to send to the CGMW headquarters the postal and/or e-mail addresses of the surveys of their relevant areas*". Six working groups were set up:

1) The Northern Eurasia Working Group with the CGMW Subcommission for Northern Eurasia and All-Russia Geological Research Institute (VSEGEI) in charge of compiling the geological map of Russia, Central Asia and adjacent offshore areas in conjunction with related countries;
2) The China, Mongolia and Korea peninsula Working Group with the CGMW Subcommission for South and East Asia, The China Geological Survey, the Institute of Geosciences and Mineral Resources of Korea (KIGAM) and the Institute of Geology and Mineral Resources, Mongolian Academy of Sciences were in charge of compiling relevant part of the IGMA5000;
3) The Middle East Working Group with the CGMW Subcommission for the Middle East was in charge of compiling the geological map of the Middle East and Near East area, adjacent part of Africa, and adjacent offshore areas;
4) The Japan and Southeast Asia Working Group with the CGMW Subcommission for South and East Asia, the Geological Survey of Japan has been in charge of compiling the geological map of Japan, Southeast Asia and adjacent offshore areas in conjunction with related countries;
5) The South Asia Working Group with the CGMW Subcommission for South and East Asia, the Geological Survey of India was in charge of compiling the geological map of South Asia and adjacent offshore areas,
6) The Editorial Working Group whose task was to synthesize all the available data from aforesaid working groups and to complete the final map.

- The 2nd Workshop (Beijing, April 23-29, 2006) discussed i) the legend of the IGMA 5000, ii) the Geographic base map, iii) the GIS and database of the IGMA5000, and iv) the conditions and timing of availability of the draft maps to be compiled by the working groups. The 9-page explanatory note to the legend of IGMA5000 was definitely adopted.

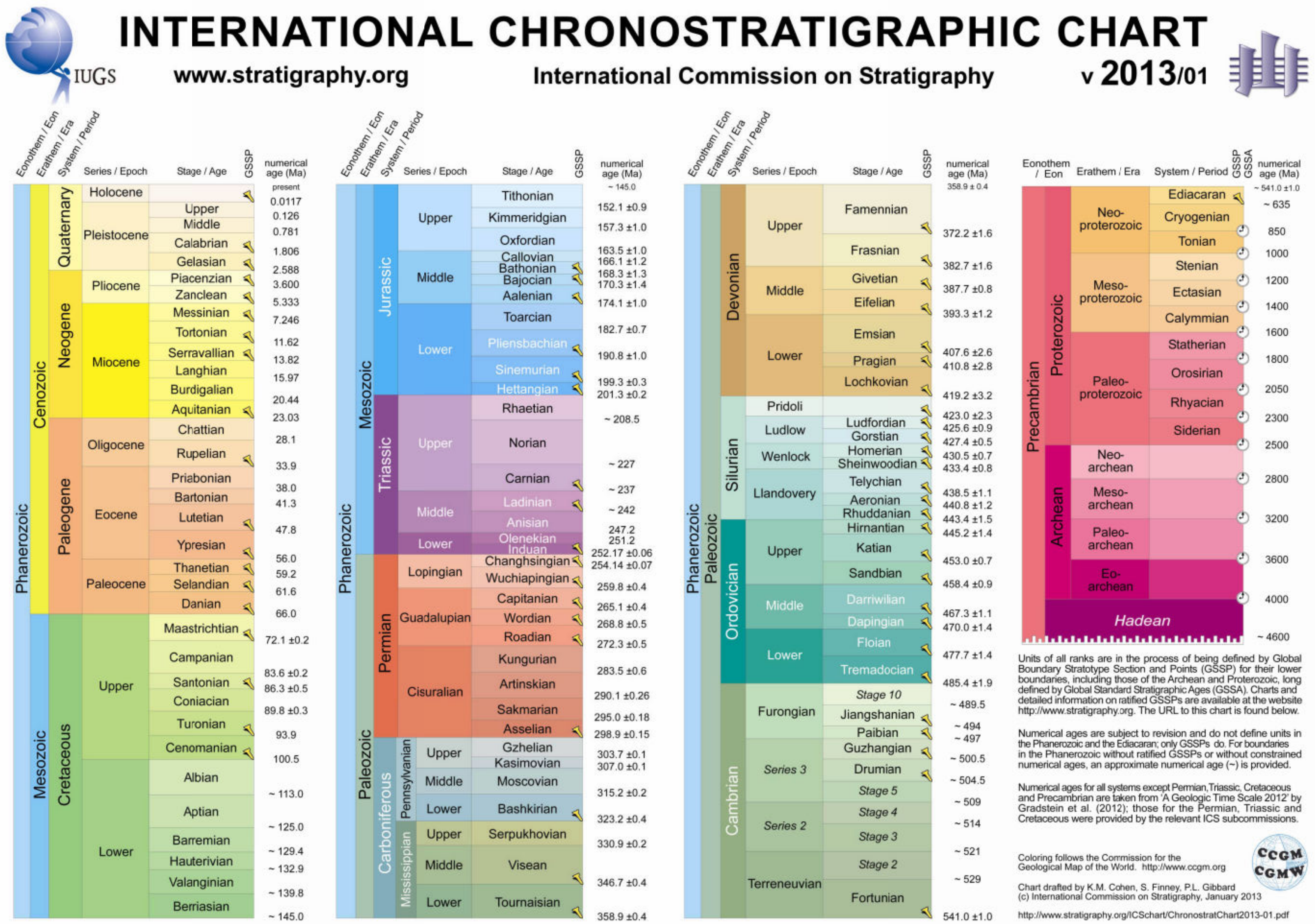
- The 3rd Workshop (Hangzhou, September, 10-14, 2007) was devoted to validate: i) the changes in the legend and in the GIS and database of the IGMA5000 proposed during the 2nd workshop, ii) the Geographic base map, iii), and to examine iv) the state of the art of the compilation and v) the conditions and timing of availability of the draft maps to be compiled by the working groups. It was decided that the deadline for submission of the contributions was May 2008 for every group.

- The 4th workshop (Beijing, October, 24-27, 2009) aimed: i) to display and review the draft of IGMA 5000; ii) to present the geological maps of related countries and areas, which were published or in printing; iii) to discuss how to improve and perfectly complete the IGMA 5000 database; iii) to discuss the plan of writing the explanatory book of the IGMA 5000, and the schedule and the contents of the book "Geology of Asia"; iv) to have academic exchanges in the research of Asian geology.

- The 5th Workshop (Beijing, April 2-29, 2011) hosted a scientific meeting on the geological evolution of Asia. Topics included regional geology of Asia; depositional successions, tectonic-magmatic events and geological evolution of Asian major tectonic units and the geological history of the Pacific-, Indian- and Arctic Ocean. After this, a draft of the map was submitted to an international review committee prior to

- The 6th Workshop (Beijing, April 3-5, 2012) was devoted to the final review before the edition of the map.

The ready to print map was presented at the IGC 34 in Brisbane, Australia in August 2012. After the implementation of the last corrections, the 12 sheets map was printed in September 2013.


INTERNATIONAL CHRONOSTRATIGRAPHIC CHART
IUGS
www.stratigraphy.org
International Commission on Stratigraphy
v 2013/01
Eonothem / Eon
Erathem / Era
System / Period
Series / Epoch
Stage / Age
GSSP
numerical age (Ma)
Phanerozoic
Cenozoic
Quaternary
Neogene
Paleogene
Mesozoic
Cretaceous
Holocene
Pleistocene
Pliocene
Miocene
Oligocene
Eocene
Paleocene
Upper
Lower
Upper
Middle
Calabrian
Gelasian
Piacenzian
Zanclean
Messinian
Tortonian
Serravallian
Langhian
Burdigalian
Aquitanian
Chattian
Rupelian
Priabonian
Bartonian
Lutetian
Ypresian
Thanetian
Selandian
Danian
Maastrichtian
Campanian
Santonian
Coniacian
Turonian
Cenomanian
Albian
Aptian
Barremian
Hauterivian
Valanginian
Berriasian
present
0.0117
0.126
0.781
1.806
2.588
3.600
5.333
7.246
11.62
13.82
15.97
20.44
23.03
28.1
33.9
38.0
41.3
47.8
56.0
59.2
61.6
66.0
72.1 ±0.2
83.6 ±0.2
86.3 ±0.5
89.8 ±0.3
93.9
100.5
~ 113.0
~ 125.0
~ 129.4
~ 132.9
~ 139.8
~ 145.0
Jurassic
Triassic
Paleozoic
Permian
Carboniferous
Pennsylvanian
Mississippian
Upper
Middle
Lower
Lopingian
Guadalupian
Cisuralian
Tithonian
Kimmeridgian
Oxfordian
Callovian
Bathonian
Bajocian
Aalenian
Toarcian
Pliensbachian
Sinemurian
Hettangian
Rhaetian
Norian
Carnian
Ladinian
Anisian
Olenekian
Induan
Changhsingian
Wuchiapingian
Capitanian
Wordian
Roadian
Kungurian
Artinskian
Sakmarian
Asselian
Gzhelian
Kasimovian
Moscovian
Bashkirian
Serpukhovian
Visean
Tournaisian
~ 145.0
152.1 ±0.9
157.3 ±1.0
163.5 ±1.0
166.1 ±1.2
168.3 ±1.3
170.3 ±1.4
174.1 ±1.0
182.7 ±0.7
190.8 ±1.0
199.3 ±0.3
201.3 ±0.2
~ 208.5
~ 227
~ 237
~ 242
247.2
251.2
252.17 ±0.06
254.14 ±0.07
259.8 ±0.4
265.1 ±0.4
268.8 ±0.5
272.3 ±0.5
283.5 ±0.6
290.1 ±0.26
295.0 ±0.18
298.9 ±0.15
303.7 ±0.1
307.0 ±0.1
315.2 ±0.2
323.2 ±0.4
330.9 ±0.2
346.7 ±0.4
358.9 ±0.4
Devonian
Silurian
Ordovician
Cambrian
Pridoli
Ludlow
Wenlock
Llandovery
Furongian
Series 3
Series 2
Terreneuvian
Famennian
Frasnian
Givetian
Eifelian
Emsian
Pragian
Lochkovian
Ludfordian
Gorstian
Homerian
Sheinwoodian
Telychian
Aeronian
Rhuddanian
Hirnantian
Katian
Sandbian
Darriwilian
Dapingian
Floian
Tremadocian
Stage 10
Jiangshanian
Paibian
Guzhangian
Drumian
Stage 5
Stage 4
Stage 3
Stage 2
Fortunian
358.9 ± 0.4
372.2 ±1.6
382.7 ±1.6
387.7 ±0.8
393.3 ±1.2
407.6 ±2.6
410.8 ±2.8
419.2 ±3.2
423.0 ±2.3
425.6 ±0.9
427.4 ±0.5
430.5 ±0.7
433.4 ±0.8
438.5 ±1.1
440.8 ±1.2
443.4 ±1.5
445.2 ±1.4
453.0 ±0.7
458.4 ±0.9
467.3 ±1.1
470.0 ±1.4
477.7 ±1.4
485.4 ±1.9
~ 489.5
~ 494
~ 497
~ 500.5
~ 504.5
~ 509
~ 514
~ 521
~ 529
541.0 ±1.0
GSSA
Precambrian
Proterozoic
Archean
Neo-proterozoic
Meso-proterozoic
Paleo-proterozoic
Neo-archean
Meso-archean
Paleo-archean
Eo-archean
Hadean
Ediacaran
Cryogenian
Tonian
Stenian
Ectasian
Calymmian
Statherian
Orosirian
Rhyacian
Siderian
~ 541.0 ±1.0
~ 635
850
1000
1200
1400
1600
1800
2050
2300
2500
2800
3200
3600
4000
~ 4600
Units of all ranks are in the process of being defined by Global Boundary Stratotype Section and Points (GSSP) for their lower boundaries, including those of the Archean and Proterozoic, long defined by Global Standard Stratigraphic Ages (GSSA). Charts and detailed information on ratified GSSPs are available at the website http://www.stratigraphy.org. The URL to this chart is found below.
Numerical ages are subject to revision and do not define units in the Phanerozoic and the Ediacaran; only GSSPs do. For boundaries in the Phanerozoic without ratified GSSPs or without constrained numerical ages, an approximate numerical age (~) is provided.
Numerical ages for all systems except Permian, Triassic, Cretaceous and Precambrian are taken from 'A Geologic Time Scale 2012' by Gradstein et al. (2012); those for the Permian, Triassic and Cretaceous were provided by the relevant ICS subcommissions.
Coloring follows the Commission for the Geological Map of the World. http://www.ccgm.org
CCGM
CGMW
Chart drafted by K.M. Cohen, S. Finney, P.L. Gibbard
(c) International Commission on Stratigraphy, January 2013
http://www.stratigraphy.org/ICSchart/ChronostratChart2013-01.pdf

COMPTES CCGM
2011 & 2012

COMMISSION DE LA CARTE GEOLOGIQUE DU MONDE

COMMISSION FOR THE GEOLOGICAL MAP OF THE WORLD

YEAR 2011 FINANCIAL STATEMENT (EUROS)

ACCUMULATED RESERVES (01/01/11)			**374 642,25 €**
INCOME 2011			
Membership fees	60 377,34 €		
Subsidies (UNESCO, IUGS,Total)	9 624,61 €		
Mapping sponsoring	7 810,35 €		
Publication sales	40 364,25 €		
TOTAL I		**118 176,55 €**	
Financial income and account interest	10 717,91 €		
TOTAL II		**10 717,91 €**	
TOTAL I + II		**128 894,46 €**	
EXPENSES 2011			
Map production	14 722,94 €		
Purchase of Maps and Documents	584,08 €		
Sales costs - Marketing	2 431,31 €		
Participation to international and national exhibitions & events	20 622,76 €		
Meetings, missions	3 072,68 €		
Postage, phone, fax, internet	7 252,52 €		
Bureautics	4 247,59 €		
Office supplies & maintenance	30 663,22 €		
Financial taxes	844,00 €		
Banking fees	1 348,62 €		
Salaries and social contributions	67 413,33 €		
Stock variation	16 144,35 €		
TOTAL III		**169 347,40 €**	
Change loss	4 797,53 €		
TOTAL IV		**4 797,53 €**	
TOTAL III + IV		**174 144,93 €**	
BALANCE 2011 (TOTAL I + III - TOTAL III + IV)			**-45 250,47 €**
deferred expenses/income			59 682,91 €
CLOSING BALANCE (31/12/11)			**389 074,69 €**

COMMISSION DE LA CARTE GEOLOGIQUE DU MONDE
COMMISSION FOR THE GEOLOGICAL MAP OF THE WORLD

YEAR 2012 FINANCIAL STATEMENT (EUROS)

ACCUMULATED RESERVES (01/01/12)			**321 052,03 €**
INCOME 2012			
Membership fees	57 446,90 €		
Subsidies (UNESCO, IUGS,Total)	7 486,10 €		
Mapping sponsoring	26 681,52 €		
Publication sales	42 100,09 €		
TOTAL I		**133 714,61 €**	
Financial income and account interest	14 359,46 €		
TOTAL II		**14 359,46 €**	
TOTAL I + II		**148 074,07 €**	
EXPENSES 2012			
Map production	20 732,18 €		
Purchase of Maps and Documents	2 014,13 €		
Sales costs - Marketing	2 716,68 €		
Participation to international and national exhibitions & events	36 228,74 €		
Meetings, missions	2 045,90 €		
Postage, phone, fax, internet	7 006,14 €		
Bureautics	5 320,09 €		
Office supplies & maintenance	22 408,54 €		
Financial taxes	661,00 €		
Banking fees	1 412,69 €		
Salaries and social contributions	53 637,26 €		
Stock variation	-14 276,84 €		
TOTAL III		**139 906,51 €**	
Change loss	2 984,15 €		
TOTAL IV		**2 984,15 €**	
TOTAL III + IV		**142 890,66 €**	
BALANCE 2012 (TOTAL I + III - TOTAL III + IV)			**5 183,41 €**
Deferred expenses/income			48 759,66 €
CLOSING BALANCE (31/12/12)			**374 995,10 €**

ANNEX

Resumes of new CGMW Bureau Members

Curricula vitae des nouveaux Membres du Bureau

Richard Symons Blewett

Contact Details 98 Royalla Drive, Royalla, NSW, 2620, Australia
Tel: +61 (0)2 62350556 (home) +61 (0)413348651 (mobile)
E-mail: rblewett98@gmail.com
LinkedIn: http://au.linkedin.com/pub/richard-blewett/13/622/8aa
Twitter: @RichardSBlewett

Personal Details Australian–British. DOB: 16-01-1963 (Melbourne, VIC)
Married, with two boys.

Key areas of knowledge and experience

- Successful record of leading and managing multidisciplinary joint-venture research teams as well as commercial projects focussed on mineral resource discovery
- Success in identifying, promoting, and developing new business opportunities, with project delivery to client satisfaction
- Experienced in strategic, financial, and people management of complex research projects with personnel based across Australia
- Excellent written and oral communication skills; can adapt from general public to technical specialist
- Highly productive and energetic structural geologist with an international research profile in Archaean tectonics, gold mineralisation, mineral systems and their signatures at a range of scales
- Range of integrative skills in geoscience, including basin evolution, geophysical interpretation, target generation, IT literate

Tertiary education

- BSc Honours 1st Class Geology (University of Swansea, UK, 1982–1985)
  French Alps Honours project area (2 months field work).
- PhD Geology (University of Leicester, UK, 1986–1989)
  Newfoundland Appalachians project area (11 months field work).
- MBA Technology Management distinction average (Deakin University, 1994–2001).

THESES

Blewett, R.S. 1985. The geology of the Barcillonnette area, Les Hautes Alps, France. Unpublished BSc (Hons) thesis, University of Wales, UK.

Blewett, R.S. 1989. The chronology and kinematics of deformation in the Lower Palaeozoic of north central Newfoundland. Unpub Ph.D. thesis, Leicester University, Leicester, UK.

Professional achievement record

Leadership skills: universal commendation, including personal promotion, for successful leadership and management over 15 years, including North Pilbara project (1997–2000), Predictive Mineral Discovery Co-operative Research Centre (*pmd*CRC*) Y2 Yilgarn project 2001–05, and the *pmd**CRC Y4 Yilgarn project (2005–08), IGC book (2007–12). Delivered to contract specifications the management of commercial project for Oman Government (1998). Track record in effective planning, scoping, implementing, controlling, and concluding successful projects. Understanding of contract law and law of tort (negligence).

Technical skills: internationally regarded structural geologist able to work at lithosphere- to micro-scales and in 4D. Proven industry success in targeting structurally-controlled gold deposits. Over two decades of experience in integrating and synthesising geology with remote sensing, potential field geophysics, magnetotellurics, and seismic reflection datasets. Highly experienced field worker, with many geological maps published to survey standard. Associate Editor Precambrian Research, invited to Editorial Board Global Tectonics and Metallogeny, multiple invitations to convene conference themes/symposia. I have published over 31 refereed papers, 52 Reports/Records, 26 Geological and Geophysical Maps, and 103 Conference Abstracts.

Conceptual and analytical skills: demonstrated IQ and ability to solve 'hard' problems; e.g., in science (23 years experience incl. 1st class Honours, PhD) and in improving business processes and value chains (distinction average in MBA). I use a systemic outlook to problem solving as well as logic and the scientific method to test hypotheses and question assumptions. Demonstrated EQ to manage and lead a mixed team of research scientists and technical personnel from different nodes to achieve a successful team result. I am interested in knowledge management, especially the cultural 'soft' side of sharing and learning.

Business acumen: successfully identified and promoted business needs for clients (e.g., Sultanate of Oman), winning the resulting tender by structuring a commercially robust deal. Represented the Australian Government internationally

(Oman, UAE, China, Norway), and nationally with State Governments. I have been involved in organisational-level policy and strategy development for the Australian Government.

Values and personality: Proactive, energetic, and results/outcome driven (Myers-Briggs ENTJ). For example, I balanced MBA study with demanding full-time work and completed my PhD research in <3 years, including a 2-month contract in Nepal. Strong publication record.

Professional Experience

April 2012– Group Leader: Regional Geology & Mineral Systems GA

- Lead geochronology, mineral systems and regional geological studies of the Australian continent
- Chief Geologist for Minerals and Natural Hazards Division

June 2007– 2012 Chief Editor 'Geology of Australia' Geoscience Australia

- Conceive, scope and lead the writing of a new book for the International Geological Congress (2012)
- Managing up to 50 authors; to realise my vision for an exciting new multidisciplinary book with the narrative of 'how geology shaped the Australian people'
- A unique breadth of knowledge on Australia's geology and its impact on people

July 2008–2012 Principal Research Scientist Geoscience Australia

- Structural geologist in regional projects: North Qld, Gawler, Central Australia, Capricorn, Yilgarn (seismic and MT interpretation, building 3D maps): Uranium-Geothermal (+ gold and base-metals) focus
- Structural advisor for Lord Howe Rise project (seismic, potential field, building 3D map): Petroleum
- GA representative Geol Survey of Western Australia technical liaison sub-committee

July 2005–June 2008 Yilgarn Y4 Project Leader *pmdCRC–GA**

- Leader multidisciplinary research project (30+ staff ~$2.5M pa), with researchers located across Australia at several universities, industry, GA and CSIRO
- Delivered research results to industry and partner organisations, including specific drilling targets at a range of scales: Gold focus with direct benefit to nickel and VHMS
- Wrote most of >500 p Final Report to sponsors (includes four first author papers)
- Guest Editor: Special Issue Precambrian Research (2010), incl. 10 papers as 1st or senior author

July 2001–June 2005 Yilgarn Y2 Project Leader *pmdCRC–GA**

- Leader multidisciplinary research project to build 3D maps (15 staff, $1.4M pa)
- Delivered research results to industry and partner organisations: Gold focus with direct benefit to nickel and VHMS
- Specialist research, 4 papers published (edited and wrote most of the Final Report)

July 2001–June 2005 Yilgarn Y1–P763 Module Leader *pmdCRC–GA**

- Structural framework of the Eastern Goldfields (4 months field work): Gold focus
- Delivered Final Report, Geoscience Australia Record and two field trips for industry

January 1997–June 2000 Pilbara Project Leader Geoscience Australia

- Successfully realigned an ailing project and built a market-oriented research team (up to 10 staff, $0.5M pa). Six months fieldwork. Multi-commodity focus (esp. gold)
- Specialist research in Archaean tectonics and mineralisation (6 journal papers)

Mar 1995–Dec 1998 Project Superintendent Oman Geoscience Australia

- Met contract obligations and delivered a first class result to the client's satisfaction (2 months field work): VHMS focus.
- Provided strategic advice to client on new technology utilisation and institutional strengthening opportunities
- Successfully managed the relationships between the client in Muscat, and the contractors in Sydney and Perth

Mar 1990–Dec 1996 Research Scientist Geoscience Australia

- Lead and managed and multidisciplinary team in the Cape York bush (10 months over 4 years)
- Delivered the project's principal outputs (3 maps and associated reports)

- Identified new map presentation techniques which became national standards, and improved business processes in map making
- Specialist research (2 journal papers published): Gold and base metals focus.

Oct 1988–Dec 1988 Contract field Earth Resources Science Inst, U.K.

- Specialist research in Nepal Siwaliks (sedimentological logging of Himalayan foreland basin sequences): Petroleum focus

July 1985–Oct 1986 Field seismologist Seismograph Services Ltd, U.K.

- Successfully managed the field party of expatriate seismologists and 50 local labourers under tough Apartheid laws of South Africa: Gold and PGE focus

Professional associations

Geological Society of Australia; Association of Professional Engineers, Scientists, Managers Australia

Personal Interests

I am physically fit, being a regular runner and cyclist, I enjoy back-country skiing, mountain biking and adventure sports. I am community spirited with local service including Primary School P&C President (2 years), School Board member (2 years), School Board Chair (3 years), Junior Cricket coach (5 years), Secretary of the local Scouts Group (2 years).

PUBLICATION LIST (Abridged)
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Degrees

- 1983 Msc. Structural Geology
- 1997 Ph.D. Tectonic and Structural Geology

Professional Career

- 1984 : First employment- Iraq Geoloical Survey
- 1985- 2003: Field and Project Manager
- 2003-2007: Head of Geological Survey Section
- 2007- Present: Deputy Director General

Others

- 1998-2011: Lecturer and supervisor to post graduate students in Baghdad, Basrah, Salah Al- Deen, and Koia Universities.
- 2007- Present : Deputy Chief Editor of " Iraqi Bulletin of Geology and Mining".
- Over 60 documented reports and published papers.

Curriculum vitae

Nikolay Borisovich Kuznetsov. A citizen of the Russian Federation.

Data of birthday - 29 May 1958, place of birth - Chelyabinsk. After graduating from school, during 1973 - 1977 he studied at the Miass geological exploration college (Chelyabinsk region). From 1977 to 1979 he served in the Soviet Army.

From 1980 to 1985 Kuznetsov N.B. studied at the department of "Historical and Regional Geology," Geological Faculty of Lomonosov Moscow State University. University. After excellent defense of diploma he continued to work at the Geological Faculty of Lomonosov Moscow State University in the "Central Kazakhstan expedition", where he worked until 1990 at positions of - an engineer, geologist, chief-geologist of the field group. From 1990 to 1994 he worked as a researcher and senior researcher at the Laboratory of Regional Geodynamics of the USSR (later, RAS). From 1994 to 1997 he worked as a senior scientific researcher in the laboratory "Geophysics of the Planets" of the Schmidt Institute of Physics of the Earth RAS. Since 1997 and till now, he has been employment at the Geological Institute of Russian Academy of Sciences (GIN RAS), where he having a position of a leading researcher in the laboratory of Geodynamics of the Late Precambrian and Phanerozoic.

Over the years, working in these organizations, Kuznetsov N.B. held senior management positions as following: a chief of field geological group, a chief of a scientific expedition; a head of the scientific laboratory, an responsible executor of scientific and industrial projects, a principal investigator (PI) of scientific projects, etc. In particularly, he was the PI of the few projects of Russian Basic Research Foundation, such as N 95-05-14545 "Palegeography and evolution of the sedimentary basins of the Earth during Early Paleozoic ", N 04-05-65093 "Alpine nappes and thrust-fold structures are a key for understanding the present-day structure and Late Paleozoic deformations in the Southern Urals", N 09-05-01033 "Structural basement of Svalbard: is it a NE continuation of Scandinavian Caledonides or NW continuation of Proto-Uralides-Timanides?". Now he is PI of project N 12-05-01063 "Ages of detrital zircons from the Late Precambrian and Paleozoic clastogenic rocks of the Western Urals and Timan-Pechora-Barents-Sea region - as a tool for tectonic zoning, as well as testing of paleotectonic reconstructions of Protobaltika/Baltica and its internal paleogeography during the Late Precambrian and Paleozoic".

In May 1994, Kuznetsov N.B. defended his thesis for degree of Candidate of Geological and Mineralogical Sciences (specializing in Geotectonics) of "Pre-Late Cenozoic tectonics of the basement of the Kuril-Kamchatka island arc" at the Geological Faculty of Lomonosov Moscow State University.

In April 2009, he defended his thesis for the degree of Doctor of Geological and Mineralogical Sciences (specializing in Geotectonics) of "Complexes of Proto-Uralides-Timanides and Late Precambrian - Early Paleozoic evolution of the eastern and north-eastern frame of the East-European platform" in Schmidt Institution of Physics of the Earth of the Russian Academy of Sciences.

Kuznetsov N.B. is married. His wife is Tatiana V. Romanyuk, born in 1957, Doctor of Physical and Mathematical Sciences, head of the laboratory "Theory of interpretation of geopotential fields," at Schmidt Institute of Physics of the Earth of the Russian Academy of Sciences.

Research interests and achievements of Kuznetsov N.B. associated with the regional geology and tectonics of the continents with a focus on Russian territory. In the last decade, he focused on regions of the South, Polar and Sub-Polar Urals, western sector of the Russian Arctic, and Svalbard. Begining 2009, Kuznetsov N.B. has a half-position of professor at the Department of mineral deposits and their exploration named after V.M. Kreyter at the Faculty of Engineering of the Russian People's Friendship University. He gives lectures and seminars for courses "Regional Geology of Russia", "Geotectonics of continents and oceans" and "Modern Problems of Earth Sciences".

In 2009, Kuznetsov N.B. was appointed as the Scientific Secretary of the All-Russian Tectonic Committee, Department of Earth Sciences of Russian Academy of Sciences. In October 2010, All-Russian Tectonic Committee has been reorganized into the Scientific Council on Problems of Geotectonics and Geodynamics with Chairman - Academician Yu.G.Leonov and the Vice-Chairman Kuznetsov N.B.

Nikolai Borisovich Kuznetsov is the author of more than 220 published scientific papers, most of them been published in leading peer-reviewed scientific journals (see below list over the past 5 years).

2006г.

1) **Kuznetsov N.B.** The Cambrian Baltica–Arctida Collision, Pre-Uralide–Timanide Orogen, and Its Erosion Products in the Arctic. Doklady Earth Sciences. 2006. Vol. 411A. No. 9. pp. 1375-1380. DOI: 10.1134/S1028334X06090091.

2) **Kuznetsov N.B.**, Soboleva A.A., Udoratina O.V. et al. Pre-Uralian tectonic evolution of the north-east and east frame of the East European craton. Article 1. Pre-Uralides, Timanides and Pre-Ordovician granitoid volcano-plutonic associations of the North Urals and Timan-Pechora region. Lithosphere. 2006. No 4. pp. 3-22. [in Russian]

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3) **Kuznetsov N.B.**, Kulikova K.V., Udoratina O.V. Structural Patterns of Pre-Uralides in the Enganepe Uplift (Polar Urals) as a Reflection of the Cambrian Collision of Baltica and Arctida. Doklady Earth Sciences. 2007. Vol. 415, No. 5. pp. 695-700. DOI: 10.1134/S1028334X07050078.

4) **Kuznetsov N.B.**, Soboleva A.A., Udoratina O.V. et al. Pre-Uralian tectonic evolution of the north-east and east frame of the East European craton. Article 2. Neo-Proterozoic-Cambrian Baltica-Arctida collision. Lithosphere. 2007. No 1. pp. 32-45. [in Russian]

5) **Kuznetsov N.B.**, Udoratina O.V. Age and geotectonic position of Late Precambrian granitoids of Vangyr massif, Subpolar Urals. Bulletin of Moscow Society of Naturalist. Geological Series. 2007. V.82. Part 2, 3-12 [in Russian].

6) **Kuznetsov N.B.**, Soboleva A.A., Udoratina O.V., Hertseva M.V., Andreichev V.L. Pre-Ordovician tectonic evolution and volcano–plutonic associations of the Timanides and northern Pre-Uralides, northeast part of the East European Craton. Gondwana Research. 2007. V.12. P.305-323. doi:10.1016/j.gr.2006.10.021

7) Ryazansev A.V., Razumovsky A.A., **Kuznetsov N.B.**, Kalinina E.A., Dubinina S.V., Aristov V.A.Geodynamics of serpentinites mélanges in the Southern Urals. Bulletin of Moscow Society of Naturalist. Geological Series. 2007. V.82. Part 1, 32-47 [in Russian].

8) Udoratina O.V., Kuznetsov N.B. The Sobsky plagiogranitoides complex of the Polar Urals. Bulletin of Moscow Society of Naturalist. Geological Series. 2007. V.82, Part.3, 49-59 [in Russian].

2008г.

9) **Kuznetsov N.B.** The Cambrian Pre-Uralide–Timanide Orogen: Structural Evidence for Its Collisional Origin. Doklady Earth Sciences. 2008. Vol. 423A, No. 9. pp. 183-187. DOI: 10.1134/S1028334X08090122.

10) Ryazansev A.V., Dubinina S.V., **Kuznetsov N.B.**, Belova A.A. Ordovician Lithotectonic Complexes in Allochthons of the Southern Urals. Geotectonics. Vol. 42, No. 5. pp. 368-395. DOI: 10.1134/S0016852108050038.

11) **Kuznetsov N.B.**, Kulikova K.V. Complexes and structures of Syumkeu-Shuchia area in the Polar Urals. Part I. Tectonics of the Syumkeu-Shuchia area. Bulletin of Moscow Society of Naturalist. Geological Series. 2008. V. 83. Part. 3. pp. 3-12 [in Russian].

12) Kulikova K.V., **Kuznetsov N.B.** Complexes and structures of Syumkeu-Shuchia area in the Polar Urals. Part II. Typization of the gabbroids of the Syumkeu-Shuchia area of the Polar Urals and origin of their metamorphic alterations. Bulletin of Moscow Society of Naturalist. Geological Series. Бюллетень МОИП. Отд. геологич. 2008. V. 83. Part. 4. pp. 12-24 [in Russian].

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14) **Kuznetsov N.B.** Does the structural basement of the Svalbard is NE prolongation of the Scandinavian Caledonides or NE prolongation of the Pre-Uralides–Timanides? Bulletin of Moscow Society of Naturalist. Geological Series. 2009. V.84. Part 3, 23-51 [in Russian].

15) **Kuznetsov N.B.**, Natapov L.M., Belousova E.A., Griffin W.L., O'Reilly S.Y. Soboleva A.A., Kulikova K.V., Udoratina O.V., Morgunova A.A. First Results of Isotopic Dating of Detrital Zircons from the Clastic Rocks of the Pre-Uralides-Timanides Complexes: Contribution in the Late

Precambrian Stratigraphy of the Enganepe Uplift, Western Polar Urals. Doklady Earth Sciences. 2009. Vol. 424, No. 1. pp. 41-46. DOI: 10.1134/S1028334X09010097.

16) **Kuznetsov N.B.,** Czerny J., Maneski M., Majka J., Kawalec-Majka A., MichalikM. First Evidence of Cambrian Conodonts in Spitzbergen and Their Important Implication for Regional Geology and Stratigraphy. Doklady Earth Sciences. 2009. Vol. 425, No. 2, pp. 189-195. DOI: 10.1134/S1028334X09020020.

17) **Kuznetsov N.B.**, Natapov L.M., Belousova E.A., Griffin W.L., O'Reilly S.Y. First Isotopic Data on Detrital Zircons from the Engane-Pe Uplift (Western Polar Urals): Implications for the Primary Tectonic Position of the Pre-Uralides–Timanides. Doklady Earth Sciences. 2009. Vol. 426, No. 4. pp. 567-573. DOI: 10.1134/S1028334X09040138.

2010

18) **Kuznetsov N.B.**, Natapov L.M., Belousova E.A. et al. Geochronological, geochemical and isotopic study of detrital zircon suites from late Neoproterozoic clastic strata along the NE margin of the East European Craton: Implications for plate tectonic models // Gondwana Research. 2010. V1-2. P. 583-601. doi:10.1016/j.gr.2009.08.005

19) **Kuznetsov N.B.** Neoproterozoic – Early Paleozoic tectonic history of Western Arctic (regional geological and paleotectonical aspects). In Contribution of Russia to International Polar Year 2007/2008. Structure and Development History of the Lithosphere (ed Yu.G.Leonov) Moscow: Palsen. 2010, pp. 525–569 [in Russian].

20) .Baluev A.S., **Kuznetsov N.B.**, Zykov D.S. New data on the lithospheric structures and formation history of the west arctic shelf (the White Sea and Barents Sea). In Contribution of Russia to International Polar Year 2007/2008. Structure and Development History of the Lithosphere (ed Yu.G.Leonov) Moscow: Palsen. 2010, pp. 252-292 [in Russian].

21) **Kuznetsov N.B.**, Natapov L.M., Belousova E.A., GriffinU.L., O'Relly S.Y., Kulikova K.V., Soboleva A.A., Udoratina O.V. The First Results of U/Pb Dating and Isotope Geochemical Studies of Detrital Zircons from the Neoproterozoic Sandstones of the Southern Timan (Djejim-Parma Hill). Doklady Earth Sciences. 2010. Vol. 435, Part 2, pp.1676 – 1683. DOI: 10.1134/S1028334X10120263

2011

22) Miller E.L., **Kuznetsov N.B.,** Soboleva A.A., Udoratina O.V., Grove M., Gehrels G. Baltica in the Cordillera? // Geology. 2011. v. 39. no. 8, p. 791-794. doi:10.1130/G31910.1

23) Tolmacheva T.Yu., **Kuznetsov N.B.**, Shishkin M.A. New Middle Ordovician conodont fauna from Polar Urals (mid stream Lek-Elets River). Bulletin of Moscow Society of Naturalist. Geological Series. 2011. V.86. Part 4. pp. 19-30 [in Russian].

24) **Kuznetsov N.B.**, Orlov S.Yu., Miller E.L., Shazillo A.V, DronovA.V., Soboleva A.A., Udoratina O.V., Gehrels G. First Results of U/Pb Dating of Detrital Zircons from Early Paleozoic and Devonian Sandstones of the Baltic_Ladoga Region (South Ladoga Area). Doklady Earth Sciences, 2011, Vol. 438, Part 2, pp. 759–765. DOI: 10.1134/S1028334X11060316.

25) Orlov S.Yu., **Kuznetsov N.B.**, Miller E.L., Soboleva A.A., Udoratina O.V. Age Constraints for the Pre_Uralide–Timanide Orogenic Event Inferred from the Study of Detrital Zircons. Doklady Earth Sciences, 2011, Vol. 440, Part 1, pp. 1216–1221. DOI: 10.1134/S1028334X11090078.

26) **Kuznetsov N.B.**, Shazillo A.V, The First Finds of Skeletal Fossils in the Kuk_Karauk Formation of the Asha Group (Southern Urals) and Their Significance for Determining the Beginning of the Pre-Uralian–Timanian Orogeny. Doklady Earth Sciences, 2012, Vol. 442, Part 2, pp. 181–187. DOI: 10.1134/S1028334X11090261.

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27) Soboleva A.A., Karchevskii A.F., Efanova L.I., **Kuznetsov N.B.**, Grouv M., Sobolev I.D., Maurin M.V. Evidence for Late Riphean Granite Formation in the Polar Urals. Doklady Earth Sciences, 2012, Vol. 442, Part 2, pp. 181–187. DOI: 10.1134/S1028334X12020080

Pierre NEHLIG

Qualification and present position	Deputy Head of the Geology Division at the French Geological Survey (BRGM), Geologist, PhD,
Years of Experience	26 years, 22 with BRGM
Fluent languages	French, English, German
Nationality	French

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Professional background and career

Pierre Nehlig is a geologist with extensive research, commercial and teaching experience. He has strong leadership skills in projects and human resources management, and broad international experience (Saudi Arabia, Oman, India, Indonesia, Kenya, USA, Philippines, Romania, Spain, Senegal, Polynesia, Juan de Fuca and Gorda ridges…). Through his formation and his professional activities, Pierre Nehlig has developed a strong speciality in geoscientific digital mapping and mineral resources from the continental scale to the local scale.

Pierre Nehlig is currently the deputy head of the Geology Division of the French Geological Survey and the National Delegate of EuroGeoSurveys the Association of the European National Geological Surveys. As National Delegate of one of the largest European Geological Surveys, he provides public Earth Science knowledge to support the EU's competitiveness, social well-being, environmental management and international commitments.

Since 2002 Pierre Nehlig is the head of a research unit of the BRGM. In 2008 Pierre Nehlig initiated the creation and took the leadership of the Regolith and Reservoir Research Unit dedicated mainly to an airborne geophysical mapping program of France, geological mapping of superficial formations and geoscientific reservoir characterizations. From 2002 to 2007 he was the manager of the Modelling Research Unit at the French Geological Survey with a team of 30 geoscientists.

From 1998 to 2001 Pierre Nehlig initiated and conducted a research project on the arabo-nubian shield involving a metallogenic, geological, geophysical and geodynamic digital synthesis. In 2001 he started a reevaluation of the geological knowledge of France and a digital synthesis at a 1:250,000-scale.

Pierre Nehlig joined the French Geological Survey in 1990 and was engaged mainly in the research- and commercial-oriented study of hydrothermal processes: epithermal gold deposits (Indonesia, Romania, Saudi Arabia, Canada) and massive sulphide deposits (Rio Tinto, Oman, Saudi Arabia). As project manager, he also coordinated the mapping and geological synthesis of the several volcanic provinces in France and overseas as well as the 50,000 scale mapping of the French Massif Central (32 maps, 50 collaborators from Universities, Research agencies…). He was the BRGM representative at the French RIDGE Comitee, planning and funding the oceanic ridges research.

During his University cursus, shared between French universities (Strasbourg, Brest) and US universities (Univ. of Washington, Univ. of California Santa Barbara) and his post doctorate at the University of Washington (Seattle) he conducted studies both on land (on ophiolites in Oman, Himalaya, Cyprus, ….) and offshore (Juan de Fuca ridge, Pacific Ocean) working mainly on the physical conditions, geometry and effects of oceanic hydrothermal circulations and associated massive sulphide mineralization.

Pierre Nehlig is an active member of several National and International professional associations and committees. He participates to the editorial board of several scientific journals and he is the first author of more than 30 peer-reviewed papers in international journals and main author and coauthor of more than 80 scientific publications, books and maps.

Randall Carroll Orndorff

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Education

Old Dominion University, Norfolk, Virginia
MS, Geology (1985)
Thesis: *Conodont biostratigraphy of the Cambrian-Ordovician boundary interval in the northern Shenandoah Valley of Virginia, USA*
BS, Geology (1983)

Employment

U.S. Geological Survey, Reston Virginia (1981-present)

Position: Director, Eastern Geology and Paleoclimate Science Center (2010-present)
Duties: Lead a team of 130 employees, mostly scientists who work on geologic mapping and framework, paleoclimate, landslide hazards, and volcano hazards; this includes international projects in Madagascar, Afghanistan, West Africa, Antarctica, and the Arctic.

Position: Associate Program Coordinator, National Cooperative Geologic Mapping Program (2002-2010)
Duties: Coordinated a multi-million dollar National program that supported geologic mapping in State geological surveys and universities; this included evaluation of geologic mapping proposals as well as geologic maps.

Position: Project Chief and research geologist, Karst Applied Research Studies through Geologic Mapping; Eastern Earth Surface Processes Team, (2000-2002)
Duties: Led a project that applied geologic mapping to the study of groundwater issues in karst aquifers and karst collapse hazards; this included detailed structural geology and stratigraphic analysis to understand the geologic controls on karst development.

Position: Research Geologist; Eastern Earth Surface Processes Team (1995-2000)
Duties: Produced detailed geologic maps along with studies of structural geology, stratigraphy, and carbonate sedimentology of the Appalachian orogen and Ozark Plateaus.

Scientific Leadership

Member of the North American Commission on Stratigraphic Nomenclature (1998-present); chair (2003-2004)

Associate Editor for Geologic Maps, Journal of Maps, Taylor and Francis Publications, London (2005-present)

Member of the National Cave and Karst Research Institute Federal Working Group (2000-2004) and Board of Directors (2006-2009)

Chair of USGS Geologic Names Committee (2005-present)

Co-chair of the USGS Water Strategic Science Planning Team (2010-2012)

Professional Affiliations

Geological Society of America
American Institute of Professional Geologists
Geological Society of Washington
National Speleological Society
Association of Missouri Geologists

Publications

Authored or co-authored 74 publications (23 geologic maps) and 52 professional abstracts

Selected Publications:

Orndorff, R.C., 1988, Latest Cambrian and earliest Ordovician conodonts from the Conococheague and Stonehenge Limestones of northwestern Virginia: U.S. Geological Survey Bulletin 1837, chapter A, 18 p.

Orndorff, R.C., Harris, A.G., and Schultz, A.P., 1988, Reevaluation of conodont color alteration patterns in Ordovician rocks, east-central Valley and Ridge and western Blue Ridge Provinces, Tennessee: U.S. Geological Survey Bulletin 1839, chapter D, 10 p.

Orndorff, R.C., 1992, Tectonic significance of cross-strike faults in the central Appalachian Great Valley of Maryland and West Virginia: Southeastern Geology, vol. 32, no. 4, p.197-214.

Orndorff, R.C., Epstein, J.B., and McDowell, R.C., 1999, Geologic map of the Middletown quadrangle, Frederick, Shenandoah, and Warren Counties, Virginia: U.S. Geological Survey Geologic Quadrangle Map GQ-1803, scale 1:24,000.

Orndorff, R.C., editor, 1999, Bedrock geologic map of central and southern New Jersey: U.S. Geological Survey Miscellaneous Investigations Map I-2540-B, scale 1:100,000, 4 sheets.

Orndorff, R.C., Harrison, R.W., and Weary, D.J., 1999, Geologic map of the Eminence quadrangle, Shannon County, Missouri: U.S. Geological Survey Miscellaneous Investigations Map I-2653, scale 1:24,000.

Orndorff, Randall C. and Harrison, R.W., 2001, Geologic map of the Winona quadrangle, Shannon County, Missouri: U.S. Geological Survey Geologic Investigations Map I-2749, scale 1:24,000.

Orndorff, R.C., and Harlow, G.E., 2002, Geohydrologic framework of the northern Shenandoah Valley carbonate aquifer system, *in*, Kuniansky, E.L., U.S. Geological Survey Karst Interest Group Workshop Proceedings, Shepherdstown, West Virginia: U.S. Geological Survey Water Resources Investigations Report 02-4174, p. 81-89.

Orndorff, R.C., Weary, D.J., and Sebela, Stanka, 2003, Geologic framework of the Ozarks of south-central Missouri: Missouri Speleology, v. 42, n. 1, p. 1-8.

Orndorff, R.C., 2004, Geologic map of the Fremont quadrangle, Shannon and Carter Counties, Missouri: U.S. Geological Survey Geologic Investigations Map I-2775, scale 1:24,000.

Orndorff, R.C., Weary, D.J., and Harrison, R.W., 2006, The role of sandstone in the development of an Ozark karst system, south-central Missouri, in Harmon, R.S., and Wicks, C., eds., Perspectives on karst geomorphology, hydrology, and geochemistry-A tribute volume to Derek C. Ford and William B. White: Geological Society of America Special Paper 404, p. 31-38.

Orndorff, R.C. and Weary, D.J., 2009, Geologic map of the Round Spring quadrangle, Shannon County, Missouri: U.S. Geological Survey Scientific Investigations Map 3073, scale 1:24,000.

Orndorff, R.C., Lyttle, P.T., Bybell, L.M., and Quintana, Lydia, 2008, The National Cooperative Geologic Mapping Program and insight into the future of geologic map production, *in*, Soller, D.R., ed, Digital mapping techniques '07- Workshop proceedings: U.S. Geological Survey Open-file Report, 2008-1385, p. 47-52.

Orndorff, R.C.(ed.), 2009, Set in stone – The work of the National Commission on Stratigraphic Nomenclature: Stratigraphy, v. 6, no. 2, p. 89.

U.S. Geological Survey Geologic Names Committee (Orndorff, R.C., Chair and preparer), 2010, Divisions of geologic time—Major chronostratigraphic and geochronologic units: U.S. Geological Survey Fact Sheet 2010-3059, 2 p.

Orndorff, R.C., 2012, Fold-to-fault progression of a major thrust zone revealed in horses of the North Mountain fault zone, Virginia and West Virginia, USA: Journal of Geological Research, v. 2012, article 294093, 13 p. http://www.hindawi.com/journals/jgr/2012/294093/

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Bruxelles, Belgium, 4th of September 1955

B.Sc, Géologie, Université d'Ottawa, Ottawa, Ontario, Canada, 1977
Ph.D., Geological Sciences, Queen's University, Kingston, Ontario, Canada, 1981

EMPLOYEMENT HISTORY

1981 – 1985 Junior Research Scientist (RES-01 level), Geological Survey of Canada (GSC), Natural Resources Canada, Ottawa, Ontario, Canada

1983 – 1990 Adjunct Assistant Professor, Department of Geological Sciences, Queen's University, Kingston, Ontario, Canada

1985 – 1991 Research Scientist (RES-02 level), Geological Survey of Canada (GSC), Natural Resources Canada, Ottawa, Ontario, Canada

1990 – present Adjunct Professor, Department of Geological Sciences, Queen's University, Kingston, Ontario, Canada

1991 – 1993 Research Scientist (RES-03 level), Geological Survey of Canada (GSC), Natural Resources Canada, Ottawa, Ontario, Canada

1993 – 1995 Head, Early Proterozoic Margins, Geological Survey of Canada (GSC), Natural Resources Canada, Ottawa, Ontario, Canada

1993 – 2007 Research Scientist (RES-04 level), Geological Survey of Canada (GSC), Natural Resources Canada, Ottawa, Ontario, Canada

1999 – 2002 Head, Superior, Proterozoic & Appalachians, Geological Survey of Canada (GSC), Natural Resources Canada, Ottawa, Ontario, Canada

2007 – present Senior Research Scientist (RES-05 level), Geological Survey of Canada (GSC), Natural Resources Canada, Ottawa, Ontario, Canada

2009 – present Head, Regional Geology, Geological Survey of Canada (GSC), Natural Resources Canada, Ottawa, Ontario, Canada

HONOURS

1984 Teaching Excellence Award, Engineering Students Society, Queen's University, Kingston

1989 Teaching Excellence Award, Faculty of Arts and Sciences, Queen's University, Kingston

1994 Geological Association of Canada Award

1995 Teaching Excellence Award, Faculty of Arts and Sciences, Queen's University, Kingston

1998 Earth Science Sector Merit Award, Ottawa

1999 Natural Resources Canada Departmental Merit Award, Ottawa

2002 Recipient, Queen's Golden Jubilee Medal, Ottawa

2006 Earth Science Sector Merit Award, Ottawa

2008 Earth Science Sector Merit Award, Ottawa

SCHOLARLY AND PROFESSIONAL ACTIVITIES

1981 – 1984 Project Leader, GSC Central Wopmay Project, Northwest Territories, Canada

1985 Co-organizer of a Special Session on the *"Wopmay Orogen, an example of early Proterozoic plate tectonics"*, Geological Association of Canada annual meeting, Canada

1985 – 1988 Project Leader, GSC Cape Smith Thrust-Fold Belt Project, Quebec, Canada

1985 – present Fellow, Geological Association of Canada

1988 – 1990 Chairperson, Geological Survey of Canada National Mapping Committee, Canada

1988 – 1992 Member, Council of the Mineralogical Association of Canada

1989 Convenor of a Special Session on the *"Tectonic, magmatic and metallogenic evolution of the early Proterozoic Cape Smith Thrust-Fold Belt"*, Geological Association of Canada annual meeting, Canada

1989 – 1991	Vice-chair, Precambrian Division of the Geological Association of Canada
1989 – 1994	Project Leader, Geological Survey of Canada Narsajuaq Arc Project, Quebec, Canada
1989 – present	Associate Editor, Canadian Journal of Earth Sciences
1991 – 1994	Chair and Past-Chair, Precambrian Division of the Geological Association of Canada
1991 – 1995	Co-convenor and organizer for the *"PRECAMBRIAN 95: International Meeting on Early Precambrian Tectonics and Metallogeny"*, Canada
1991 – 1998	Member, LITHOPROBE (Canada's National Geoscience Project) geology and geochemistry committee, Canada
1991 – present	Fellow, Geological Society of America
1992 – 1995	Associate Editor, Canadian Mineralogist
1993	Member, National Science and Engineering Research Council (NSERC) Site Visit Committee, Canada
1993	Co-convenor, International Hudson Bay Lithosphere Workshop, Ottawa, Canada
1994	Chair and Keynote Speaker, Controls of Metamorphism Meeting, University of Liverpool, Liverpool, United Kingdom
1995	Chair, Thermal and Mechanical Interactions of Deep Seated Rocks Meeting, Charles University, Prague, Czech Republic
1995 – 2000	Project Leader, GSC South Baffin Integrated Geoscience Project, Nunavut, Canada
1996	Chair and Keynote Speaker, North Atlantic Orogens Working Group, Copenhagen, Denmark
1996	Lead Scientist, Heads of Diplomatic Missions Northern Tour, Department of External Affairs, Canada
1996 – 1997	Co-convenor, GSC Bedrock Geoscience Program Workshop, Canada
1996 – 1998	Member, Joint Technical Program Committee, Geological Society of America, USA
1996 – 2000	Member, National Science and Engineering Research Council (NSERC) LITHOPROBE Supporting Geosciences Grant Selection Committee, Canada
1997	Chair, North Atlantic Proterozoic Orogens Workshop, Strasbourg, France
1997	Convenor of a Special Session on *"Tectonometamorphic Studies in the Canadian Shield"*, Geological Association of Canada annual meeting, Canada
1997	Chair, Plenary Session on *"Earth Systems"*, Geological Association of Canada annual meeting, Canada
1998	Chair, North Atlantic Orogens Working Group, Copenhagen, Denmark
1998	Lead Coordinator and Editor, "*Geological Society of America's DNAG (Decade of North American Geology) Precambrian volume"*, Denver, USA
1998 – 1999	National_Guest Lecturer, "Geology and tectonics of NE Laurentia in the Paleoproterozoic: correlations and implications", Geological Association of Canada, *National Howard Street Robinson Lecture Tour*, Canada
2000 – 2004	Project Leader, GSC Central Baffin Integrated Geoscience Project, Nunavut, Canada
2001	Convenor of a Special Session and Workshop on the *"Tectonic Integration of Paleoproterozoic Circum-Superior Orogens"*, Geological Association of Canada annual meeting, Canada
2003	Member, Valorisation-Recherches Québec Grant Review Committee, Canada
2003	Convenor of a Special Session on the *"Truth and Beauty in Metamorphism: a Tribute to Dugald Carmichael"*, Geological Association of Canada annual meeting, Canada
2003 – 2004	Guest Editor, Canadian Mineralogist
2003 – 2006	Project Leader, GSC Trans-Hudson Orogen/Superior Margin Metallotect Project, Manitoba, Ontario, Quebec and Nunavut, Canada
2003 – 2006	Member, Canadian Foundation for Innovation (CFI) Grant Selection Committee, Earth Sciences Division, Canada
2003 – present	Senior Member, Earth Science Sector Post-Doctoral Fellowship Evaluation Committee, Natural Resources Canada, Ottawa, Ontario, Canada
2004	Earth Sciences Resource Person, Adventure Canada, September 2004, Canada and Greenland
2004 – present	Member, Earth Science Information Centre Advisory Committee, Natural Resources Canada, Ottawa, Canada
2004 – present	Visiting Senior Research Fellow, Department of Geological Sciences, Oxford University, Oxford, UK

2005	Convenor of a Special Session on the *"Dawn of Modern-Day Tectonics"*, Geological Association of Canada annual meeting, Canada
2005	Earth Sciences Resource Person, Adventure Canada, September 2005, Canada and Greenland
2005 – 2011	Project Co-leader, International Polar Year (IPY) Geological Map of the Arctic Project, Canada, USA, Russia, Sweden, Denmark, and Norway
2006	Co-convenor, International Polar Year (IPY) Arctic circum-polar bedrock geological map workshop, Calgary, Canada
2006	Co-convenor of a Special Session on *"The Next Geology Map of Canada"*, Geological Association of Canada annual meeting, Canada
2006 – 2008	Project Leader, GSC South West Baffin Integrated Geoscience Project, Nunavut, Canada
2007	Member, Fonds québécois de la recherche sur la nature et les technologies (FQRNT) Grant Review Committee, Montréal, Canada
2007	Convenor of a Special Session on *"Recent Advances in the Geology of Laurentia"*, Geological Association of Canada annual meeting, Canada
2007	Expedition Leader, Adventure Canada, August 2007, Canada and Greenland
2009 – present	Project Co-leader, Tri-territorial database and map compilation (Tri-T) project, Nunavut, Northwest Territories, Yukon, Canada
2008	Canadian representative, International Polar Year (IPY) Arctic circum-polar bedrock geological map workshop, St. Petersburg, Russia
2009	Guest Speaker, Canadian Parliament, West Block, "Hot prospects in the cold: the new Geological Map of the Arctic", Ottawa, Canada
2010	Canadian representative, Arctic circum-polar tectonic map (TeMAr) workshop, St. Petersburg, Russia
2010	Earth Sciences Resource Person, Adventure Canada, August 2010, Canada and Greenland
2010 – present	Fellow, Royal Canadian Geographical Society, Ottawa, Canada
2011	Member, Canadian Foundation for Innovation (CFI) Grant Selection Committee, Earth Sciences Division, Ottawa, Canada
2011	Canadian representative, Arctic circum-polar tectonic map (TeMAr) workshop, Paris, France
2011	Guest Professor, University of Oxford NW Scotland field school, April 2011, United Kingdom
2011	Earth Sciences Resource Person, Adventure Canada, September 2011, Canada and Greenland

THESIS STUDENT CO-SUPERVISON:

Summary:

- BSc……………………………………………………………. 7
- MSc…………………………………………………………… 7
- PhD……………………………………………………....…. 9

PUBLICATIONS:

Summary:

- books edited……………………………………………… 4
- chapters in books………………………………………… 5
- papers in refereed journals………………………………. 45
- papers in referenced conference proceedings…………… 9
- technical reports…………………………………………. 35
- published abstracts………………………………………. 105
- published geoscientific maps…………………………….. 80
- field trip guidebooks……………………………………... 3