

Special Issue on the IUGS Awards

IUGS Awards were presented to outstanding scientists at the 35th International Geological Congress in Cape Town, South Africa.

IUGS Science Excellence Awards recognize outstanding original contributions or achievements that mark a major advance or contribution to the Earth Sciences. Four geological scientists were selected for these awards for 2016.

IUGS Emile Argand Award - Prof. Dr. Judith A. McKenzie

Prof. Dr. Judith A. McKenzie of ETH Zürich was presented with the **IUGS Émile Argand Award**, which is intended to honor an active senior geoscientist who has an outstanding scientific record and international recognition. The award was presented to Prof. Dr. McKenzie at the Opening Ceremony of the 35th IGC.

Prof. Judith A. McKenzie received a chemistry background in her early studies, but she had always been interested in natural environmental systems. As a result of this interest, she studied marine geology and geochemistry at the Scripps Institute of Oceanography in La Jolla, CA, and subsequently earned her doctorate in July 1976 at the Institute of Geology at the ETH Zurich in Switzerland. After being a postdoc and a Senior Research Associate at



the ETH Zürich, she took up an Associate Professor appointment at the University of Florida in Gainesville, Florida. She finally returned to Europe as a Titular Professor at the ETH-Zürich



in 1987 and became Full Professor in 1996 until her retirement in 2007. She remains at the ETH as Professor emeritus and continues to conduct research in the field of chemical sedimentology and geomicrobiology.

Beginning with her doctoral research investigating modern dolomite formation beneath the sabkhas of Abu Dhabi, UAE, she has frequently returned to the theme involving the origin of that enigmatic carbonate mineral. Indeed, she spent a lot of time on the hot and dry sabkha coasts of Abu Dhabi, sampling and measuring coastal sediments and establishing a hydrological model to explain the formation of this mineral. Her continued interest in dolomite formation in hypersaline environments has taken on a more microbial focus on processes in the modern coastal sabkha in Qatar.

Her research career has followed several diverse pathways. The abundance of lake systems in Switzerland inspired her to use them as models to study different biogeochemical processes that could be further extrapolated to marine sediments.

She wrote several seminal papers dealing with carbon isotopes in lakes that are still applied not only to lake sediments but also to the ocean system.

Her interest in marine carbonate sediments included projects in the Great Barrier Reef, the Mediterranean, or the Bahamas, where she participated in several ocean-drilling campaigns.

The results of these investigations are well-established references in the field of climate and environmental changes in Earth history. She has also investigated the relationship between marine organic-rich sediments and dolomite formation, and processes involved in the deposition of the evaporites during the Messinian Salinity Crisis.

During the last 20 years beginning with a now classic paper in the *Journal of Sedimentary Research* (1997), she and her associates have added a new dimension to dolomite studies with the introduction of a microbial factor. Prof. McKenzie and her research group have continued to conduct research at the interface between biology and geology, which lies at one



of the most stimulating frontiers in science. With the establishment of the “dolomite microbial model”, she has made major contributions to our understanding of microbial processes in Earth history, to the point that the biological factor was added in the geochemical and sedimentological equation, helping to decipher and evaluate the relationship between biotic and abiotic processes. The publications produced by her research group are important contributions to the field and have triggered a large number of studies in the fast evolving field of geomicrobiology. In my opinion, the main contribution of Prof. McKenzie to the field of sedimentology has been her studies of dolomite formation and the related “Dolomite Problem” enigma.

Another outstanding point in her career is the fact that she has been scientifically active and a tireless promoter of international ocean research drilling programs (ODP & IODP) in both research and an advisory capacity. She has been president of both the IAS and the Geochemical Society. Furthermore, she has been the main advisor on 24 MSc and PhD theses during her career, as well as co-advising the MSc and PhD theses of 39 other students.

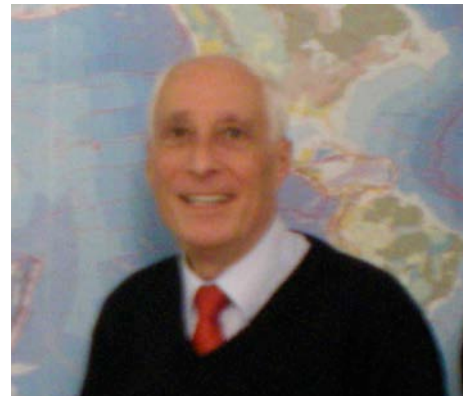
Prof. McKenzie has published about 200 papers with more than 100 in peer-reviewed journals. Her merits have already been rewarded in part by election as a Fellow of the Geological Society of America in 1983 and the American Geophysical Union in 1999, as a foreign member of the Royal Danish Academy of Sciences and Letters in 2006, by the Jean Baptiste Lamarck Medal of the European Geosciences Union in 2006, by election as a Geochemical Fellow (jointly GS & EAG) in 2007, and by the award of the Gustav Steinmann Medal of the Geologische Vereinigung in 2008. Finally, in August 2014, she became Honorary Member of the IAS at the International Sedimentological Congress in Geneva, Switzerland.

In summary, McKenzie’s research ideas and findings have contributed significantly to determining the dynamic exchange between the biosphere, hydrosphere, atmosphere and lithosphere throughout time, creating bridges to our understanding of the interactions between Earth and biosphere in modern and ancient environments, and the role of organisms in controlling physico-chemical processes that result in the formation of sediments and sedimentary rocks.

IUGS James M. Harrison Award - Dr. Jean-Paul Cadet

Dr. Jean-Paul Cadet of Pierre & Marie Curie University was recognized with the **IUGS James M. Harrison Award**, which honors an outstanding contribution to IUGS over an extended period of time. The award was presented to Dr. Cadet at the IUGS Reception at the 35th IGC.

Prof. Dr. Jean-Paul Cadet received his graduation in Natural Sciences in Paris, 1962. He got a Diplomat in High Education one year later. In 1976, Jean-Paul Cadet presented a Ph.D Thesis work entitled *Contribution to the geological study of Dinarides; a cross section of a paleocontinental margin (Bosnia Herzegovina, Yugoslavia)*, under the supervision of Prof. Dr. Jean Aubouin. The research work undertaken by J.P. Cadet was in parallel with his teaching activity as Assistant (1963 – 1967) and Lecturer (1967 – 1976) at the Orléans University. Dr. Cadet got an Associate Professor position in the same university before moving onto the positions of Full Professor and Director of the Tectonics Laboratory of the Pierre & Marie Curie University (Paris 6 University). He stayed there from 1984 to 2008, the last four years as an Emeritus Professor.



During his scientific career, most of Dr. Cadet's activities focused on marine geodynamics and structural geology. This is clearly reflected in more than 90 scientific publications dealing with peri-Mediterranean geology, in countries such as the old Yugoslavia, Spain, Italy, as well as the geology of Japan, Korea and Indonesia. In these varied geological regions, Dr. Jean-Paul Cadet contributed to increased knowledge on many subjects related to the convergence of active margins and subduction processes. His positions as Deputy Director of the KAIKO-NANKAI French-Japanese Programme and Vice-President of the Peri-Tethys Programme testify to the previous statement.



The Peri-Tethys Programme was developed by a consortium of the P & M Curie University with CNRS, IFP, BRGM and 9 oil companies undertaking the realization of a set of 21 paleogeodynamic maps. Dr. Cadet was responsible of the tectonic and structural aspects of the maps issued from the programme, which points to a sound specialty of J.P. Cadet in the field of geological maps. Thus, it not was strange that Dr. Cadet served as President of the Commission for the Geological Map of the World (CGMW) from 2000 to 2010. He is Honorary President of the Commission at present.

Research and logistic activities of Jean-Paul Cadet were very often conducted in the sea. Thus, he was enrolled in DSDP Leg 57 (1978), HEAT (1959), DSDP Leg 87 (1982), KAIKO (1984), KAIKO-NANKAI (1989), YOKOSUKA (1992), NATUSUSHIMA (1993), MODEC (1994) and KAIKO TOKAI (1996) cruises, all of them devoted to marine geology and geophysics studies. Besides the relevant direct participation in the cruises, Dr. Cadet was a member of the DSDP Active Margins Panel, the ODP Tectonic Panel, the ODP Planning Committee and, as previously written, Deputy Director of the Kaiko French-Japanese Programme. At a national level, Dr. Cadet was President of the French ODP Scientific Committee (1984 - 1988), President of the French National Commission for Marine Geoscience (IFREMER) and member of the IFREMER Scientific Committee.

The impressive scientific achievements of Jean-Paul Cadet can be followed in many research papers published in most of the high impact journals dealing with geodynamics of marine basins. Moreover, his role managing scientific tasks must be underlined. In this respect, I would like to call attention to the contribution of Dr. Cadet as President of the French National Committee of Geology (IUGS) from 1990 to 1996 and then as Councillor of the International Union of Geological Sciences (2000 – 2008). The Harrison Award is awarded to for distinguished service to the Union. Prof. Dr. Jean-Paul Cadet has excelled in this regard.

IUGS Award for Geoscience Information – Dr Steve Richard

Dr. Steve Richard of Columbia University for his contributions to Geoscience Information.

Interdisciplinary Earth Data Alliance
Lamont-Doherty Earth Observatory, Columbia University,
New York, USA
(previously Senior Geologist and Head of Geoinformatics,
Arizona Geological Survey, Tucson, USA)



Steve Richard has been a global leader in the field of geological informatics for many years, and is well known and respected by the entire community. It is the CGI Council's pleasure to nominate him for the outstanding scientist award.

Steve was a research geologist and Head of Geoinformatics at the Arizona Geological Survey from 1992 until 2016, but his influence on North American and international geoinformatics extends way beyond the borders of Arizona.

Steve was a leading member of the North American Geological Map Data Model (NADM) Steering Committee from 2000 to 2007. He worked with this consortium of American and Canadian geoscientists, database designers, and developers of geologic map information to develop a comprehensive geological data model that would form one of the foundations for global standards development through the IUGS Commission for the Management and Application of Geoscience Information (CGI).



Steve was a founding member of the IUGS CGI Interoperability Working Group in 2004. As part of this group, Steve was a leading force for over 10 years in the development of the GeoSciML standard for geoscience data transfer. In 2016, GeoSciML is now recognised as the data transfer standard for geoscience data sharing projects around the world, including OneGeology, INSPIRE, USGIN, AuScope and others.

Steve has also been deeply involved in development of international geoscience vocabularies through the IUGS CGI Controlled Vocabularies Working Group, and was the founding Chair of the successor CGI Geoscience Terminology Working Group. Over 30 internationally-agreed vocabularies were published under Steve's leadership.

Steve has been a leader in technical development of the US Geoscience Information Network (USGIN) - especially as chief architect of the US National Geothermal Data System - to deploy web services for geoscience information exchange. His advocacy of OGC and CGI standards in US geological surveys has led to these global standards being embedded in North American data delivery best practice.

Steve has also recently worked with the International Organization for Standardization as the editor of the ISO19115-3 geospatial metadata standard, and is an active participant in the Earth Cube geoscience community in the USA.

"I am deeply honoured to have received the Science Excellence Award 2016 In Geoscience Information. Thank you for the nomination!" said Steve.

IUGS Award for History of Geology – Em. Prof. Martin John Spencer Rudwick

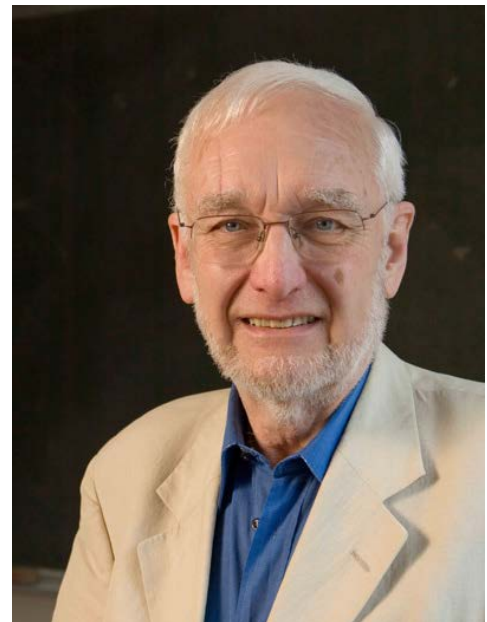
Emeritus Prof. Martin Rudwick of the University of California at San Diego for his contributions to the History of Geology. In addition, he was awarded Vladimir V. Tikhomirov History of Geology Award by the IUGS Commission on the History of Geology (INHEGEO).

Brief Biography of Martin John Spencer Rudwick

Date of birth 1932, INHIGEO Honorary Senior Member since 2012

Present positions:

- Emeritus Professor of History at the University of California, San Diego
- Affiliated research scholar, Department of History and Philosophy of Science, Cambridge University.



Previous Awards

- 1987 History of Geology Award, Geological Society of America
- 1994-1997 Turner Lecturer, Trinity College, Cambridge University
- 2005 Sue Tyler Friedman Medal for the history of geology, Geological Society of London
- 2007 George Sarton Medal, History of Science Society.
- 2008 Election as Fellow of the British Academy for the Humanities and Social Sciences
- 2014 Davis Prize for books in the history of science directed towards the wider public, History of Science Society

Overview

Martin Rudwick started his career as a palaeontologist, with a special interest in brachiopods and palaeoecology. While on the staff of the Geology Department at Cambridge University he began to interest himself in the work of Cuvier and found that much of what Cuvier was doing was relevant to his own scientific interests.

Thereafter, and partly as a result, he gradually shifted his interests from geology to history of geology. He was appointed Professor at the Free University in The Netherlands (as successor to Hooykaas), and worked for a period in the Science Studies unit at Edinburgh University, where he acquired considerable interest in the sociology of knowledge.

Rudwick subsequently relocated to Princeton University in the United States, following upon which he took up a chair at San Diego.

Finally he returned to Cambridge as an affiliate research fellow in the History and Philosophy of Science Unit there.

Martin Rudwick has exerted a huge influence on the development of History of geology in the following ways:

- Very detailed (and exemplary) studies of English and French history of geology, especially in the period 1770-1850.
- Analysis of early uniformitarianism and catastrophism.
- Attention directed to ‘visual imagery’ and its importance in the development of geological thought.
- Emphasis on the relationship between history and geology and the role of historical thinking in the emergence of *geology* as an independent science with its own special characteristics (as opposed to mineralogy or geognosy).



- Detailed case studies of important episodes in the history of geology (such as the ‘Great Devonian controversy’ and Darwin’s work at Glen Roy).
- Deployment of ideas from the sociology of knowledge (e.g. the notion of ‘core set’) to describe and analyse geological developments, especially during controversies.
- Rescuing the reputations of personalities such as de Luc, who were for long (since the time of Gillispie) regarded as 2nd-class figures.

Martin Rudwick’s major history of geology contributions are as follows:

The Meaning of Fossils: Essays in the History of Paleontology (American Elsevier, 1972)

The Great Devonian Controversy: The Shaping of Scientific Knowledge among Gentlemanly Specialists (Chicago, 1985)

Scenes from Deep Time: Early Pictorial Representations of the Prehistoric World (Chicago, 1992)

Georges Cuvier, Fossil Bones, and Geological Catastrophes (Chicago, 1997)

The New Science of Geology: Studies in the Earth Sciences in the Age of Revolution (Ashgate, 2004) (an anthology of his more important HOG publications)

Lyell and Darwin, Geologists: Studies in the Earth Sciences in the Age of Reform (Ashgate, 2005) (a second anthology!)

Bursting the Limits of Time: The Reconstruction of Geohistory in the Age of Revolution (Chicago, 2005)

Worlds before Adam: the reconstruction of geohistory in the age of reform (Chicago, 2008)

Earth’s Deep History: How It was discovered and why it matters (Chicago, 2014).

These works have been described as the "definitive histories of the pre-Darwinian earth sciences"

Martin has also produced an excellent Open University film showing how Lyell used evidence from his studies at Mount Etna to argue for the great age of the Earth.

IUGS Award for Stratigraphy and Sedimentology - Prof. Dr. Andrew D. Miall

Prof. Dr. Andrew D. Miall of the University of Toronto for his contributions to Stratigraphy and Sedimentology. In addition he was awarded Digby McLaren Medal by the IUGS Commission on Stratigraphy (ICS)

Andrew Miall is one of the most influential scientists in the fields of sedimentology, stratigraphy and basin analysis, with an extraordinarily prolific record of published work. His original research articles, reviews and textbooks have helped generations of young scientists, and have shaped the science of sedimentary geology as we know it today.



Andrew's publication record is outstanding. His illustrious career over the past four decades led to an unprecedented world-class profile and international recognition.

Following initial work within the petroleum industry, Andrew joined the Geological Survey of Canada in 1972 as a Research Scientist in the Arctic Islands section. In 1979, he became the inaugural holder of the Gordon Stollery Chair in Basin Analysis and Petroleum Geology at the University of Toronto. More than three decades later, Andrew still holds a Professorship at the University of Toronto, where he remains as active as ever and continues to make excellent impact on science and education.

During his tenure at the University of Toronto, Andrew served as Editor of the Geoscience Canada journal from 1982 to 1989, as Co-Editor-in-Chief of Sedimentary Geology from 1987 to 2005, and currently as sedimentology editor for Earth Science Reviews. Andrew was awarded the Past President's Medal of the Geological Association of Canada in 1983, and became a Distinguished Fellow in 1995. In 1992 he was awarded the D.Sc. degree from the University of London. He was elected a Fellow of the Academy of Sciences of the Royal Society of Canada in 1995, and was awarded an Honorary Doctorate from the University of Pretoria in 2001. More recently, Andrew has served as Vice President (2005-2007) and President (2007-2009) of the Academy of Sciences of the Royal Society of Canada.

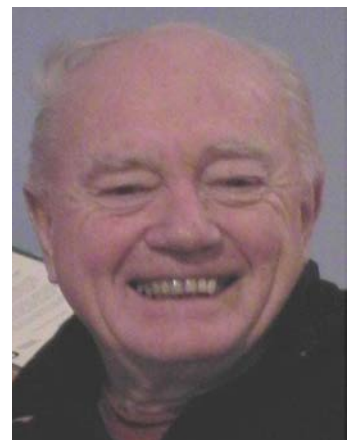
These accomplishments define a brilliant career in which Andrew has raised the standards of professional excellence to an unprecedented level.

IUGS Award for Structural Geology - Prof. Dr. Bruce Edward Hobbs

Prof. Dr. Bruce Edward Hobbs of CSIRO, the Australian national research council, for his contributions in Structural Geology.

Bruce Hobbs is a scientist of international standing, and a research strategist without peer. His vision, research, and leadership continue, 55 years on, to have a profound impact on the discipline of structural geology and its applications worldwide. He

is first author of *An Outline of Structural Geology*, regarded as one of the most influential structural geology texts of the 20th century, and more recently on *Structural Geology: The Mechanics of Deforming Metamorphic Rocks* which treats deforming metamorphic systems





as nonlinear dynamic systems within a single thermodynamic framework, laying out the basis for fruitful and exciting research and application. Bruce is not only an enthusiastic and innovative scientist and supervisor of numerous students; his track record as advisor, founder and director of various research institutions demonstrates his tremendous contributions to the wealth of our society.

At the IUGS Reception at the 35th IGC, the **Episodes Best Paper Award** was presented to **Dr. Gianni Balestro, Dr. Andrea Festa, Dr. Yildirim Dilek, and Dr. Paola Tartarotti** for their 2015 paper titled "Pre-Alpine Extensional tectonics of a peridotite-localized oceanic core complex in the late Jurassic, high-pressure Monviso ophiolite (Western Alps)" published in volume 38, number 4, pages 266 to 282.

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- a summary of about two or three sentences. These will be published in the E-Bulletin with a link to the material on the website and, if appropriate, links to other relevant sites (e.g. the IUGS Commission websites); and
- a summary for publication on IUGS social media platforms not exceeding 100 words.

Each contribution should be sent simultaneously to the E-Bulletin editor Councillor Prof. Ben Mapani (Ben.mapani@gmail.com) and the webmaster Dr. Giuseppe Di Capua (giuseppe.dicapua@ingv.it) and social media coordinator Councillor Dr. Amel Barich (amel.barich@gmail.com).

NOTES

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- Please check the IUGS [Calendar of Events](#) for upcoming scientific meetings this coming month. If you require information on international conferences, meetings, etc. to be considered for inclusion in this Calendar please mail to: giuseppe.dicapua@ingv.it
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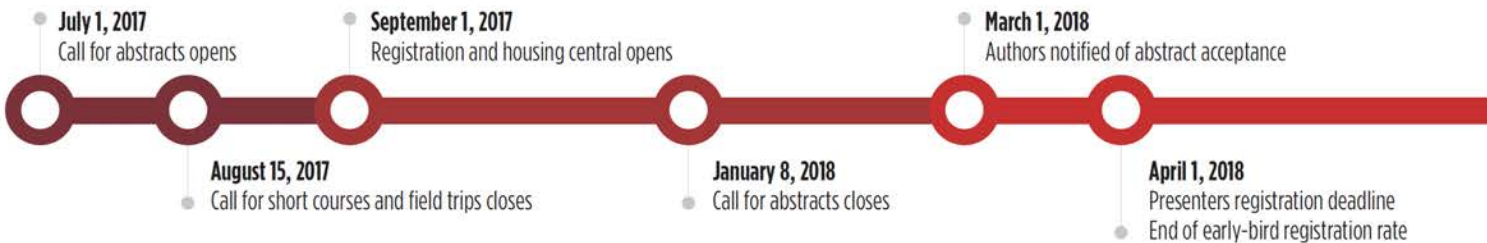
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