



## Awarding the best science

*Chairman of EGU Awards Committee Alberto Montanari explains the importance of the EGU's Awards & Medals Programme.*

The wider public frequently finds out about important scientific discoveries when a scientist is awarded an important prize. In fact, while the scientific community learns through scientific papers, the general public is informed about science by the media. The latter gather information from scientific associations, often from their award programmes. This is the reason why leading scientific bodies like the EGU put much effort and care into establishing and delivering high-profile medals and awards. The [EGU's Awards & Medals Programme](#) gives voice to the best of geosciences in the world and brings the most important discoveries of contemporary research on the Earth, planetary and space sciences to the attention of society. The Awards & Medals Programme is also a means for EGU to recognise the excellence of its best members and to join together a leading group of EGU ambassadors. In this role, medalists and awardees are delegated to attend meetings hosted by other organisations and to offer special presentations and lectures labeled as EGU contributions. They are identified as role models for the next generation of young scientists to foster research in geosciences.

Every year, the EGU Awards & Medals Programme recognises eminent scientists for their outstanding research contributions. The Union's awards and medals include the Union Medals for senior scientists, which are the most prestigious awards given by the Union: the [Arthur Holmes Medal](#), focusing on solid Earth geosciences; the [Alfred Wegener Medal](#), dedicated to atmospheric, hydrological and ocean sciences, and the [Jean Dominique Cassini Medal](#), for planetary and space sciences. These are associated with an EGU Honorary Membership. The Union's [Alexander von Humboldt Medal](#) is reserved for scientists from developing countries.

The EGU Union Awards include the [Arne Richter Outstanding Young Scientists Award](#) as well as the [Union Service](#) and [Diamond Service](#) awards. The [programme](#) is completed by 27 Division medals for mid-career scientists and the [Division Outstanding Young Scientists Awards](#).

Medals and awards are presented annually at the EGU General Assembly, during a solemn Award Ceremony where citations are delivered to mark the most important achievements of medalists and awardees. All Union and Division medalists, as well as Arne Richter Young Scientists awardees, are invited to deliver talks during the General Assembly. These [lectures](#) convey groundbreaking research results and perspectives and are well attended by young scientists, who are inspired by the awardees' achievements.

The selection of the medalists and awardees is an enormous challenge. Every year tens of excellent scientists are nominated by EGU members and supported by top level colleagues from all over the



Alberto Montanari (left) awards the 2011 [EGU Darcy Medal](#) to Ján Szolgay.

world. I am proud to say that all nominations are carefully scrutinised via a peer-review process which is excellently organised. Nominations are first reviewed by the EGU Office to check eligibility requirements. Then they are forwarded to the [Awards and Medals Committees](#), each one composed by four to six brilliant scientists, most of whom are past EGU medalists. Therefore, the peer review process involves some 150 scientists! I am in charge of overseeing and assisting their work and every year I am amazed by the careful attention that is dedicated to every detail. I think the scientific community and the society in general are indebted to these peers that carry out a laborious and often unnoticed work. I can really say that they are under-recognised! Finally, the outcome of the work of the Medals Committees is assessed by the EGU Council, who announces the winners through the EGU Office, bringing the good news to the wider public.

The EGU is proud of its medalists and awardees, and is proud of the quality of both their selection and the excellence of the message they deliver. I am convinced that the EGU Awards and Medals Programme is a very significant contribution to the whole community of geoscientists!

*Alberto Montanari*  
EGU Awards Committee Chair

# Division reports

## News brought to you from four EGU divisions

In each edition of GeoQ, we select a few Division Presidents to contribute reports updating EGU members with news from their divisions. Issue 5 gives voice to Oksana Tarasova (AS President), Gert-Jan Reichart (BG President), Denis-Didier Rousseau (CL President), and G. Hilmar Gudmundsson (CR President).

### Atmospheric Sciences

The Atmospheric Sciences (AS) Division is one of the largest EGU divisions. Its science addresses a wide spectrum of issues involving atmospheric processing and their interactions with climate. This short report reflects several important development and challenges in these areas.

I would like to start by highlighting the work of the winners of the AS Division Vilhelm Bjerknes Medal in 2012 ([Adrian Simmons](#)) and 2013 ([John Burrows](#)). Both bring up the value of global observations for the improved understanding of atmospheric processes, atmospheric chemistry and climate change, and the importance of this improved understanding for society.

Last year, Adrian Simmons gave a Medal Lecture on the assimilation of observational data for atmospheric monitoring and forecasting ([available online](#)). In this lecture, he showed that the forecasting skills of, for example, three days of operational forecast of pressure levels have improved from around 80% in 1980 to 97% in 2011. From 1980 to 2000, this improvement results mostly from advances in the forecasting system, while later on the progress is also due to observational improvements. In relation to this, it should be mentioned that the number of satellite-borne instruments from which data were assimilated routinely by the European Centre for Medium-Range Weather Forecasts (ECMWF) increased from about 10 in 1996 to more than 50 in 2010. The data on atmospheric composition are also used to improve weather forecasts.

Improved skills of weather forecasting systems are extremely important in the cases of severe weather events like superstorm Sandy, which hit the highly populated north-eastern US on 29–30 October 2012 causing over 100 fatalities and considerable damage to property and infrastructure. Forecasts from the ECMWF IFS (Integrated Forecasting System) provided considerable assistance to US forecasters responsible for predicting the track, intensity and impacts of the storm. A major cyclone was predicted to be close to the US east coast seven days before landfall and the predicted pressure levels were very close to the observed ones. More details on the Sandy forecast by ECMWF can be found in a paper by Tim Hewson published in the [ECMWF Newsletter No. 133](#) (2012).

It is clear that remote sensing plays an important role in atmospheric research: John P. Burrows will further highlight the applications of this technique during [his Medal Lecture](#) at the forthcoming EGU General Assembly. Satellite observations contribute to the global integrated observations, envisaged and required in the 2004

strategy on Integrated Atmospheric Chemistry Observations, but the rate of progress towards this system has slowed or reversed. Many currently exploited satellites used for atmospheric composition measurements have ended or are well beyond their design lifetimes. ESA's decision to decommission its European Remote Sensing ERS-2 satellite in July 2011, and the unexpected loss of Envisat in April 2012, have brought a sudden end to a pioneering age of European atmospheric observation. The loss of observations and the resulting gap in measurements of key atmospheric constituents is not fully realised yet – the community is still in shock. Some nadir measurements are continued in the ESA/METSAT Metop mission are still delivering some additional trace gas information. The Sentinel 3 mission, possible from 2016 onwards, will provide a follow on for the Advanced Along Track Scanning Radiometer and Medium Resolution Imaging Spectrometer Envisat instruments. However, there are now no European measurements of the dry columns of greenhouse gases such as carbon dioxide and methane, and no instruments to measure vertical profiles of trace constituents (trace gases aerosol and clouds) from the upper troposphere to the lower thermosphere. New missions and the use of platforms such as the international space station to demonstrate and evolve atmospheric observation instrumentation are urgently needed to create a system fit for purpose and in time for it to be of value.

In relation with the topics discussed above, I would like to highlight the recent project [ARISE](#) (Atmospheric dynamics Research Infrastructure in Europe) that aims to integrate complementary instrumentation to provide improved observations of atmospheric dynamics from the tropics to northern European regions for stratosphere-mesosphere-resolving climate models. The ARISE project intends to revive existing collaborations among European scientists while developing and integrating, for the first time, a large set of complementary topics such as infrasound, gravity and planetary waves, stratosphere and mesosphere disturbances, satellite atmospheric studies and modeling of the atmosphere, and atmospheric dynamics. Data collected by multiple networks will be analysed to extract optimised estimations of the evolving state of different atmospheric layers, which would help constrain the parameterisation of gravity waves and better initialise forecasts of the middle and upper atmosphere.

Networks involved in ARISE are the infrasound network developed for verification of the Comprehensive Nuclear-Test-Ban Treaty, the Network for the Detection of Atmospheric Composition Change using LIDAR (Light Detection and Ranging) and the Network for the Detection of Mesopause Change, dedicated to airglow-layer measurements in the mesosphere. National stations and networks complement the dataset.

### Acknowledgments

I would like to thank Adrian Simmons, John Burrows and Alexis Le Pichon for their contribution to this AS Division news report.

Oksana Tarasova  
AS Division President

---

## Biogeosciences

---

This year the Biogeosciences (BG) Division is going to have a new president: Alina Stadnitskaia. Many regular BG participants of the General Assembly already know her, as she has organised sessions on extreme environments and methane cycling for many years. Obviously we are all very happy with her as our new president, more so even as she is the first female BG President.

The Division is also seeing changes amongst its science officers: Tina Treude followed up Antje Boetius and Caroline Slomp has replaced Jack Middelburg in the fields of marine biogeosciences and microbial biogeosciences. All interested EGU members are invited to the BG Division Meeting at the General Assembly to meet your new Division President and science officers.

This year the Biogeosciences Division award, the Vernadski Medal, is going to Han Dolman. We are very happy that over the years we have had such a list of prestigious Vernadski Medal winners as well as Outstanding Young Scientist Award winners. The list of awardees is available on the EGU website or the [BG Division page](#). For next year, please remember to nominate new people, both for the Vernadski Medal and the Outstanding Young Scientists Award. You can do so by contacting Michale Botcher who is chairing the BG medal committee, or submit your choices through the EGU website.

Finally I would like to thank all the conveners who have chaired sessions over the last five years and who have made my BG presidency to be the fun job it has been. Hope to see you all again in Vienna.

*Gert-Jan Reichart*  
BG Division President

---

## Climate: Past, Present & Future

---

The Climate: Past, Present & Future (CL) Division was very fortunate and proud to have its candidate, [Michael Ghil](#), receive the 2012 EGU Alfred Wegener Medal in addition to awarding two outstanding CL medalists: [Michael Mann](#), for the Hans Oeschger Medal, and [Wolfgang Berger](#), for the Milan Milankovic Medal. The climate community was also recognised by the AGU through the William Bowie Medal, which was awarded to Anny Cazenave last Autumn.

As a good start to 2013, Susan Solomon and Jean Jouzel shared the famous [Vetlesen Prize](#) and once more, a member of the climate community, [Edouard Bard](#), will receive the Alfred Wegener 2013 EGU Medal next Spring. In addition to these important awards celebrating colleagues from our community, the 2012 EGU meeting was really successful, with a great Union Symposium dedicated to Willi Dansgaard. Again in 2013, the division remains the third highest in the number of abstracts received.

The community dynamism remains high, with new sessions proposed and a very exciting program. New figures are appearing as conveners or co-conveners and some of them are young scientists, which is a very good sign to notice. This enthusiasm is endorsed by the large contribution of the climate community to the upcoming IPCC report, with many members leading important chapters.

In other publications news, the division journal [Climate of the Past](#) is also doing well with increasing number of papers and pages published, seating among the top established publications in its category.

The year 2012 saw the last International Partnerships in Ice Core Sciences (IPICS) meeting held in Giens, where the ice-core community met and discussed the very recent results obtained from both Greenland and Antarctica. This year is also filled with important meetings. [PAGES](#), the Past Global Changes programme of the International Geosphere-Biosphere Programme, organised two meetings, one dedicated to young scientists followed by another dedicated to Open Science, in Goa in February. The palaeoceanography community will also meet in Barcelona next Autumn for its regular international conference.

Last but not the least, the CL Division has a new president, Thomas Blunier from Copenhagen, who will take over at the next General Assembly. I would like to take this opportunity to thank you all for your input, contribution and great support during my two terms. I hope you will provide Thomas with equal support and contribution.

*Denis-Didier Rousseau*  
CL Division President

---

## Cryospheric Sciences

---

The EGU Division on Cryospheric Sciences (CR) provides a forum within the EGU on a range of topics related to the Earth's frozen regions. These include snow and ice, avalanches and permafrost, ice sheets, ice caps and sea ice. The field of cryospheric sciences has exploded and grown greatly in size over the past ten years or so as it has become increasingly clear how important the cryosphere is in the context of a warming world.

Judging by the positive feedback we received, last year's EGU General Assembly was very successful and possibly our best meeting to date. The EGU annual conference is now one of the pivotal meetings for scientists conducting research on various aspects of the cryosphere. Last year's highlights include the [Louis Agassiz Medal Lecture by Ian Joughin](#) of the Applied Physics Laboratory at the University of Washington.

The 2013 Louis Agassiz Medal is awarded to Florent Dominé for his outstanding contributions to snow and ice physics, including cross-disciplinary studies leading to a fundamental and quantitative understanding of how snow physical properties influence the uptake, retention, and reactivity of chemical species on snow and sea ice. Xavier Fettweis is presented with the Arne Richter Award for Outstanding Young Scientists for fundamental contributions to the understanding and quantifying the current and future surface mass balance of the Greenland ice sheet.

*G. Hilmar Gudmundsson*  
CR Division President