



GRSG Newsletter
Issue 72
March 2015



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The Geological Remote Sensing Group (GRSG) is a Special Interest Group affiliated jointly with The Geological Society of London and the Remote Sensing and Photogrammetry Society. It was founded in 1989 to raise awareness and encourage the use of remote sensing technologies in the geoscientific and related communities. The GRSG seeks to represent the views of industry, government and academic individuals and organisations - resulting in a balanced scientific, technological and commercial viewpoint.



Front Cover







WorldView3 image of Mount Fuji, taken at a high off-nadir angle. From the DigitalGlobe blog, "When the image was taken, WorldView-3 was in orbit 617 km above earth's surface and 2,500 km southeast of the iconic Japanese mountain. The satellite's telescope was pointed at the mountain almost at the earth's limb — in fact, from the mountain, the satellite would have appeared to be only 1 degree above the horizon — and yet it was still able to capture an image with roughly 1.2 m resolution. The Hida Mountains that can be clearly seen in the background are more than 150 km northwest of Mount Fuji."

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GRSG Committee



<p>Luke Bateson British Geological Survey Kingsley Durham Centre Nottingham NG12 5GG Tel: +44 (0) 115 9363043 Email: chairman@grsg.org.uk</p>	<p>Chairman</p> 	<p>Charlotte Bishop NPA Satellite Mapping, CGG Services (UK) Ltd Crockham Park, Edenbridge Kent. TN8 6SR, UK. Tel: +44 (0) 1732 865023 Email: secretary@grsg.org.uk</p>	<p>Secretary</p> 
<p>Eric Peters Consultant 10 Westfield Avenue, Harpenden, Hertfordshire AL5 4HN Tel: 44 (0) 1582 713347 Email: eric_peters@ntlworld.com treasurer@grsg.org.uk</p>	<p>Treasurer</p> 	<p>Huma Irfan Geonergy Limited 20-22 Wenlock Road, London, N1 7GU Tel: +44 (0) 203 0867 150 Email: huma.irfan@geonergy.org</p>	<p>Webmaster/ Membership</p> 
<p>Elsbeth Robertson School of Earth Sciences University of Bristol Wills Memorial Building, Queen's Road, Clifton Bristol, BS8 1RJ Email: newsletter@grsg.org.uk</p>	<p>Newsletter</p> 	<p>Xue Wan Department of Earth Science and Engineering, Imperial College South Kensington Campus London SW7 2AZ. Email: x.wan12@imperial.ac.uk</p>	<p>Student Rep</p> 
<p>Dietmar Backes UCL - Department of Civil, Environmental and Geomatic Engineering Gower Street, London WC1E 6BT UK Email: dietmar@cege.ucl.ac.uk</p>	<p>Committee</p> 	<p>Andrew Iwanoczko Exelis Visual Information Solutions Venture House, 2 Arlington Square Bracknell, Berkshire, RG12 1WA United Kingdom Email: Andrew.Iwanoczko@Exelisinc.com</p>	<p>Committee</p> 

<p>Martin Black British Antarctic Survey High Cross, Madingley Road, Cambridge, CB3 0ET Email: martin.black@bas.ac.uk</p>	<p>Committee</p> 	<p>Rita Matildes Dep. Geographic Engineering, Geophysics and Energy/Centre of Geology Faculty of Sciences - University of Lisbon, Portugal Campo Grande, 1749-016 Lisbon Email: rmmatildes@fc.ul.pt</p>	<p>Committee</p> 
<p>Rebecca Phillips Airbus Defence and Space Jupiter Court, 6 Dominus Way Meridian Business Park Leicester. LE19 1RP United Kingdom Tel: +44 (0)116 240 7200 Fax: +44 (0)116 240 7100 Email: rebecca.phillips@astrium.eads.net Web: www.geo-airbusds.com</p>	<p>Committee</p> 	<p>Alex Gow 4th Floor, The Building 578-586 Chiswick High Road Chiswick, London W4 5RP UK Tel: 07771330525 Email: alex.gow@digitalglobe.com</p>	
<p>Matthew Webster University College London Department of Geography Gower Street London WC1E 6BT United Kingdom Email: matthew.webster.13@ucl.ac.uk</p>		<p>Andrew Hart Woodcote Grove, Ashley Road, Epsom, Surrey, KT18 5BW Email: abhart74@gmail.com</p>	

Dear All,

Welcome to the first newsletter of 2015! Let's start by looking back at 2014 and the very successful 25th anniversary conference in December. I would personally like to thank everyone who contributed and helped make the conference the success it was. Special thanks must go out to not only the committee for their usual hard work but also the keynote speakers who all did a fantastic job of looking back over the last 25 (or more) years of geological remote sensing and then offering their views on the future. This set a great theme for the conference which was picked up in many other presentations.

Of course the conference is usually defined by the social events, which in turn are defined by the attendees. It is rare to find such a welcoming, friendly and approachable community that really makes newcomers and students feel part of the group. It might have helped that we set a record for the number of bottles of wine drunk at the wine reception and conference dinner!

It is now time to look forwards to the upcoming year there are several announcements to make:

The **GRSG student awards** are open; these are a great opportunity for students to get their hands on a £750 award to help with their work, please see the flyer in the newsletter. Also for students is the generous **fieldwork bursaries offered by Nigel Press**, these are offered to support fieldwork which has a humanitarian, sociological or environmental benefit.

Our North American committee has been busy organising a series of special sessions at the **Imaging and Geospatial Technology Forum of the ASPRS**, which is held in May 2015 in Florida, USA.

We are pleased to announce that the 2015 GRSG conference will take place at the European Space Agency in Frascati, Italy on the 9th to 11th December 2015. The theme for the conference is 'Challenges in Geological Remote Sensing' and will cover the usual range of geological topic and applications with oil and gas sessions organised in conjunction with the EO Sub Committee of the International Association of Oil and Gas Producers. More information will be sent out in the near future.

Fortunately we have some new committee members to help organise all these events; I would like to welcome Rebecca Phillips, Andrew Hart, Alex Gow and Matthew Webster to the committee. You can find their contact details in the committee information pages and each will be giving a brief profile, Alex's is in this issue.

Best Wishes

A handwritten signature in blue ink, appearing to read 'Luke Bateson'.

Luke Bateson (GRSG Chairman)
chairman@grsg.org



Editor's message



Dear all,

First of all I would like to say a big thank you to everyone who attended the AGM last December in London to celebrate 25 years of the GRSG. It was a fantastic and successful event and I hope you all enjoyed the meeting. Have a sneak peak at a selection of some [AGM photos](#) in this issue but for many more please head to the [GRSG website](#). The [abstracts are now available online](#). The released presentations can also be found on our website and are exclusive for members.

In this issue, we have the usual [News and Developments](#) section and an article from Airbus Defence and Space about Global Seep products. We've had the pleasure of adding some new committee members this year, so please welcome Rebecca Phillips, Andrew Hart, Alex Gow and Matthew Webster. Over the coming issues you can read about them in our committee profiles – first up is [Alex Gow](#).

There's lots of news for students this quarter. We have the announcement of this year's [student awards](#). Please feel free to distribute the announcement to interested parties. Last year, the North American GRSG committee held a [careers webinar](#) and the details of how you can catch up on it can be found on the website.

As always, I hope you enjoy reading this issue and please feel free to send contributions. Any feedback is also always welcome.

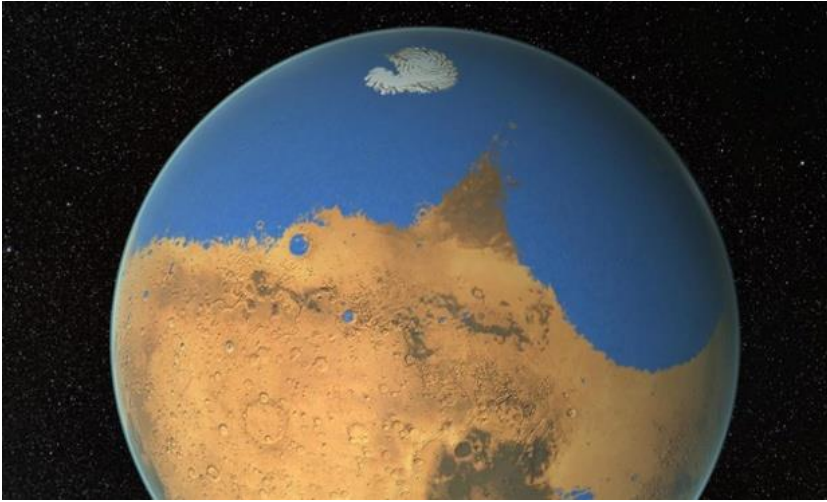
Best wishes

Elspeth Robertson
GRSG Newsletter Editor - newsletter@grsg.org.uk

As some of you may know GRSG now has its own group pages on both **LinkedIn** (over 1,700 members!) and **Facebook** but now we are also on **Twitter** under **@grsg_geolsoc**. Search for us under GRSG – Geological Remote Sensing Group (LinkedIn and Facebook) and join in the discussions and meet other like-minded people. For more information on these groups please contact Huma Ifan.

All past GRSG newsletters (numbers 1 to 71) are available on the website
<https://www.grsg.org.uk/newsletters/>

NASA finds evidence of a vast ancient ocean on Mars



NASA scientists have determined that a primitive ocean on Mars held more water than Earth's Arctic Ocean and that the Red Planet has lost 87% of that water to space.

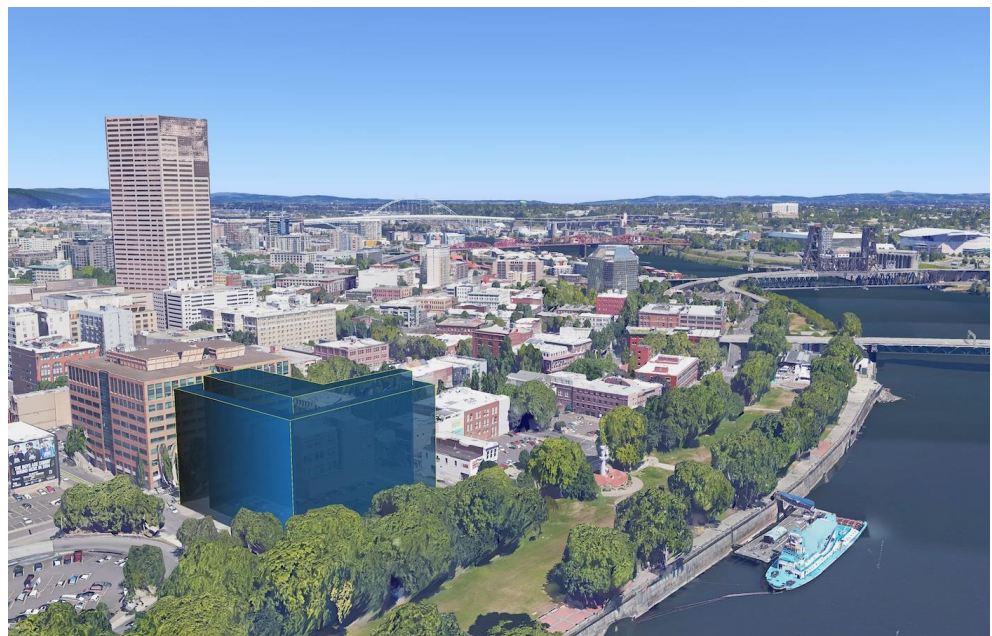
A primitive ocean on Mars held more water than Earth's Arctic Ocean, according to NASA scientists who, using ground-based observatories, measured water signatures in the Red Planet's atmosphere.

Perhaps about 4.3 billion years ago, Mars would have had enough water to cover its entire surface in a liquid layer about 450 feet (137 meters) deep. More likely, the water would have formed an ocean occupying almost half of Mars' northern hemisphere, in some regions reaching depths greater than a mile (1.6 kilometers).

Source: [NASA](#). Image Credit: NASA/GSFC

Google Earth Pro is now free

Over the last 10 years, businesses, scientists and hobbyists from all over the world have been using Google Earth Pro for everything from planning hikes to placing solar panels on rooftops. Google Earth Pro has all the easy-to-use features and detailed imagery of Google Earth, along with advanced tools that help you measure 3D buildings, print high-resolution images for presentations or reports, and record HD movies of your virtual flights around the world.



Starting today, even more people will be able to access Google Earth Pro: we're making it available for free. To see what Earth Pro can do for you—or to just have fun flying around the world—[grab a free key](#) and [download Earth Pro today](#). If you're an existing user, your key will continue to work with no changes required.

Source: [Google Maps Blog](#)

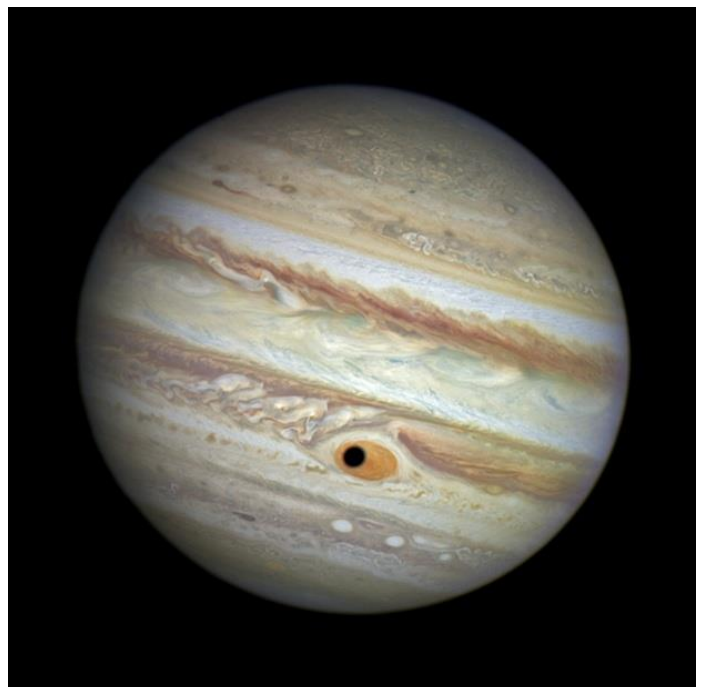
Hubble at 25: the cosmos at its most breath taking

The Hubble telescope was launched in April 1990. Ever since, it has been providing astronomers with breathtaking images of the cosmos. Source: [The Guardian](#).



Taken in 2013, this Hubble image shows part of the sky in the constellation of Orion. Rising like a giant seahorse from turbulent waves of dust and gas is the Horsehead Nebula, otherwise known as Barnard 33. This image shows the region in infrared light (the Hubble is capable of taking some images in infrared), which has longer wavelengths than visible light and which can pierce through the dusty material that usually obscures the inner regions of a nebula. The result is this ethereal and fragile-looking structure, made of delicate folds of gas and dust. The nebula, which is 1,500 light years from Earth, is a stellar nursery in which stars are coalescing out of clouds of material. The bright spots that can be seen in its base are young stars that are just in the process of forming.

Hubble is mostly known for the images that it has taken of distant stars and galaxies. However, the telescope has also made considerable contributions to the study of objects, mainly planets, found within our own solar system. This image, taken in April 2014, is a close-up view of the giant planet Jupiter, which Hubble was monitoring in order to study changes in its immense Great Red Spot, a persistent atmospheric storm that dominates the planet's appearance. During the exposures taken by Hubble, the shadow of Ganymede, one of the moons of Jupiter, swept across the Great Red Spot, giving the planet the appearance of having a pupil at the centre of a 10,000-mile-diameter red eye.



Sentinel-2: Europe's 'Landsat' ready to picture Planet Earth



The lead spacecraft in Europe's new multi-billion-euro Earth observation (EO) programme is built and ready to go into orbit.

Sentinel-2a will take pictures of the planet's surface in visible and infrared light. Its data will track everything from the growth of megacities to the variable yields of the world's most important food crops.

The pair of Sentinel-2 satellites will routinely deliver high-resolution optical images globally, providing enhanced continuity of SPOT- and Landsat-type data.

Sentinel-2 will carry an optical payload with visible, near infrared and shortwave infrared sensors comprising 13 spectral bands: 4 bands at 10 m, 6 bands at 20 m and 3 bands at 60 m spatial resolution (the latter is dedicated to atmospheric corrections and cloud screening), with a swath width of 290 km. The 13 spectral bands guarantee consistent time series, showing variability in land surface conditions and minimising any artefacts introduced by atmospheric variability.

The mission orbits at a mean altitude of approximately 800 km and, with the pair of satellites in operation, has a revisit time of five days at the equator (under cloud-free conditions) and 2–3 days at mid-latitudes.

Source: [BBC](#) (including image source) and [ESA](#)

Provisional Landsat 8 Surface Reflectance Data Available



Provisional Landsat 8 Surface Reflectance (SR) data products are now available through the Earth Resources Observation and Science (EROS) Center Science Processing Architecture (ESPA) On Demand Interface <http://espa.cr.usgs.gov/> and EarthExplorer* <http://earthexplorer.usgs.gov>.

As currently produced for Landsat 4-5 and Landsat 7 scenes, product options such as top-of-atmosphere (TOA) reflectance, surface reflectance (SR), and SR-based spectral indices are available for Landsat 8 scenes through the ESPA interface.

*Surface Reflectance (SR) data only for individual scenes can be selected using EarthExplorer, under the Landsat CDR Data Sets. These requests will be sent to the ESPA On-Demand interface for processing and data delivery.

Image Credit: NASA's Goddard Space Flight Center

Quickbird. Going, going, gone



European Space Imaging announced that on Tuesday 27 January 2015, after 13 years of excellent performance, Quickbird approached its end of mission smoothly and re-entered the earth's atmosphere at 01:59 UTC above the South Atlantic Ocean near southern Brazil.

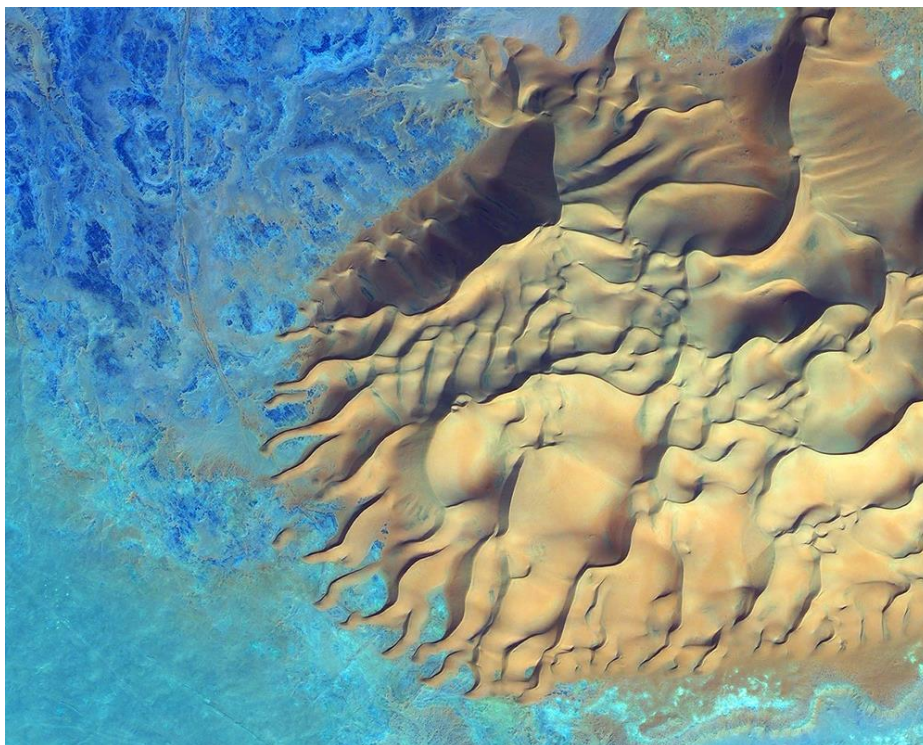
DigitalGlobe stated: "*QuickBird de-orbited successfully. QuickBird was on orbit for more than 13 years, far exceeding its designed mission life. The satellite made over 70,000 trips around the Earth, contributing substantially to DigitalGlobe's unmatched imagery catalog, and thus our understanding of our changing planet. Many thanks to our customers and partners for their support of a very successful mission. Imagery from QuickBird -- as well*

as the rest of the DigitalGlobe constellation -- can be still purchased from our imagery catalog."

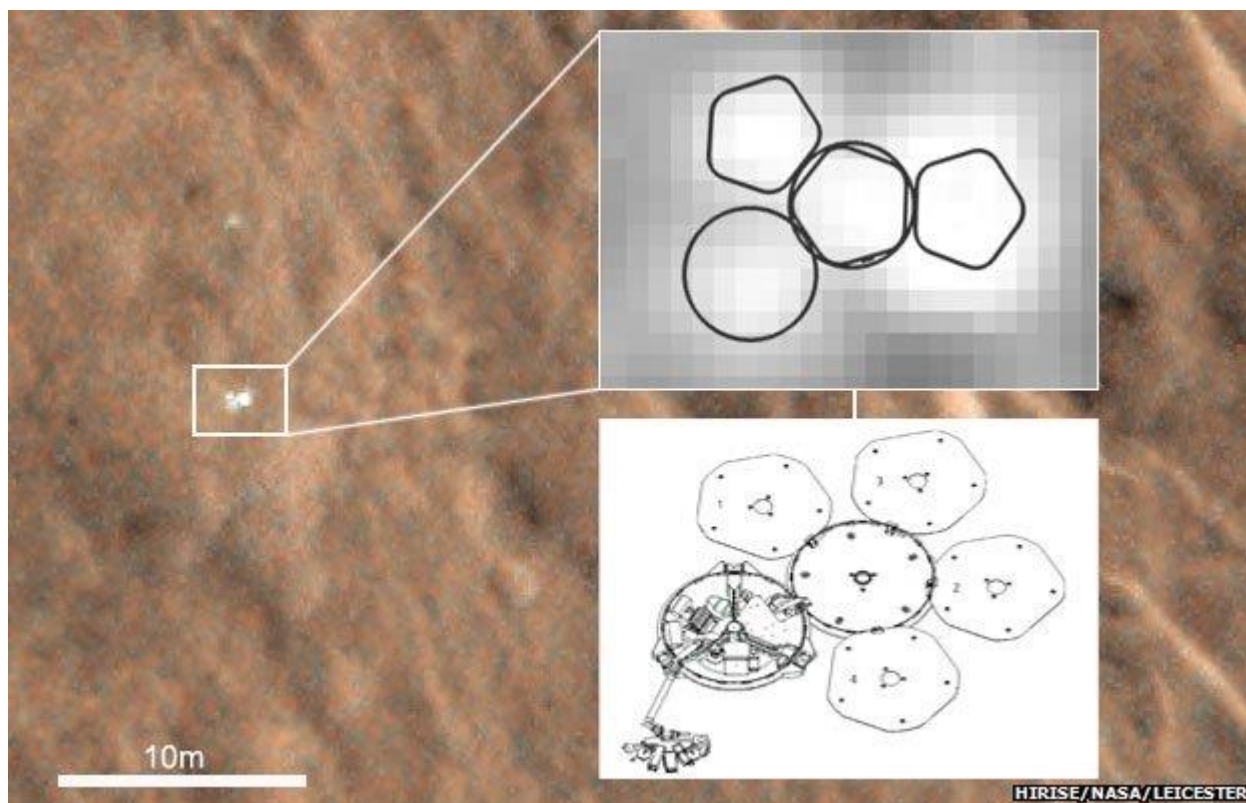
European Space Imaging will continue providing Quickbird imagery from the archive as well as taking new collection orders from the sibling satellites in the DigitalGlobe constellation.

Source: <http://us5.campaign-archive2.com/?u=afbe993ce225d71274b8f371b&id=7870b28370&e=33aea439ad>

Images: The Isles of Scilly, UK and Algerian Sand Dunes.



Lost Beagle2 probe found 'intact' on Mars



The missing Mars robot Beagle2 has been found on the surface of the Red Planet, apparently intact. High-resolution images taken from orbit have identified its landing location, and it looks to be in one piece. The UK-led probe tried to make a soft touchdown on the dusty world on Christmas Day, 2003, using parachutes and airbags - but no radio contact was ever made with the probe. Many scientists assumed it had been destroyed in a high-velocity impact. The new pictures, acquired by Nasa's Mars Reconnaissance Orbiter, give the lie to that notion, and hint at what really happened to the European mission.

Airbus sells in-orbit SPOT 7 imaging satellite to Azerbaijan

Airbus Defence and Space has agreed to sell its SPOT 7 medium-resolution optical Earth observation satellite, which just finished in-orbit checkout, to Azerbaijan's Azercosmos space agency as part of a long-term partnership in commercial remote sensing, Airbus and Azercosmos announced 2 December.

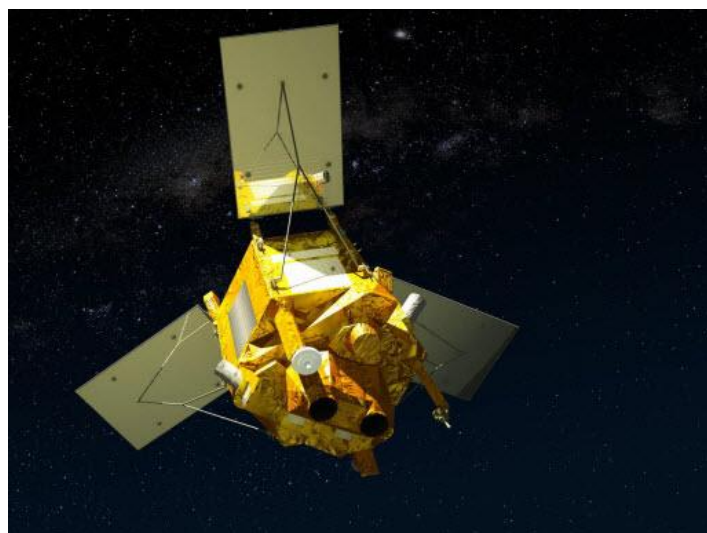
As part of the unusual agreement, whose financial terms were not disclosed, Azercosmos has taken title to SPOT 7, renamed it Azersky and has been given preferred-access rights to the orbiting SPOT 6 to market the satellites' imagery in Azerbaijan and surrounding regions in South Asia.

Airbus will build a satellite control center in Azerbaijan and will train a team of more than 25 Azeri engineers in France during the next 18 months.

Airbus retains preferred marketing rights to SPOT 7 beyond Azerbaijan and the Azercosmos marketing area.

Source: <https://news.eoportal.org/web/eoportal/news/did-you-know/-/article/airbus-sells-in-orbit-spot-7-imaging-satellite-to-azerbaijan>

Image: Airbus Defence & Space





GRSG North America Special Sessions

At the ASPRS Imaging and Geospatial Technology Forum

Call for Papers

The **GRSG North America Committee** in collaboration with the **American Society of Photogrammetry and Remote Sensing (ASPRS)** is holding a series of special sessions on geological applications of photogrammetry and remote sensing at the **Imaging and Geospatial Technology Forum (IGTF)** (formerly the ASPRS Annual Conference) to be held at the Tampa Marriott Waterside Hotel, Tampa, Florida, May 4 through May 8, 2015. Oral and poster abstracts (250 words) are requested covering the following proposed themes:

- Applications of Unmanned Aerial Systems (UAS) in the extractive industries
- Advances in geological remote sensing for natural resource exploration
- Applied ecological remote sensing
- Operational uses of remote sensing in the extractive industries

GRSG North America will also be hosting a **networking and social event** during the **IGTF**. For more information or to submit an abstract (deadline: February 19th, 2015) please e-mail: northamerica@grsg.org.uk. **We look forward to seeing you in Tampa!**



<http://conferences.asprs.org/Tampa-2015/>



Geological Remote Sensing Group
North America Committee

<http://www.grsg.org.uk>

Attention all students!!



GRSG Membership for students is only £7! As a GRSG student member you are able to apply for the annual Student Award (see the next page for further details), you can get exclusive access to the current and old Newsletter issues, as well as receive invitations to careers webinars and events.

If you would like to join you can do so online at <https://www.grsg.org.uk> or if you would like to know more information please contact the GRSG Student Representative Xue Wan (x.wan12@imperial.ac.uk) or the GRSG Membership Secretary, Huma Irfan (membership@grsg.org.uk).

Fieldwork Bursary

Nigel Press was very honoured by the GRSG's gesture in making him Life-time Member of the GRSG following the support of Nigel Press Associates Ltd (now CGG Services (UK) Ltd) in GRSG activities for a number of years. Recognising that there is still much needed scientific progress to be made in our discipline, he wanted to offer some continuing contribution for the future in return. Nigel is therefore pleased to announce that a fieldwork bursary fund run by his family is being opened to Members of GRSG. The Fund provides a few bursaries each year, mainly to MSc students, to undertake fieldwork which has a humanitarian, sociological or environmental benefit, and ideally is carried out in conjunction with an NGO. Selection of projects is made purely on merit; last year The Fund partly supported a GRSG member, Naomi Morris, on a very ambitious trip to work on geo-hazards in Papua New Guinea, other recipients included undergraduates from Oxford who worked on the Colima volcano in Mexico and L'Aquila earthquake site in Italy.

More details on this opportunity and how to apply can be found at www.lydiapress.org



The Geological Remote Sensing Group



GRSG Annual Student Award

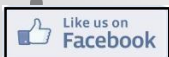
- ❖ Three awards of £750 for geoscience remote sensing research students
- ❖ The student awards are available for GRSG student members in full or part-time university programs
- ❖ These awards may be used to support fieldwork, data/software purchases and attendance at conferences



More information :

<https://www.grsg.org.uk/>

Follow us:

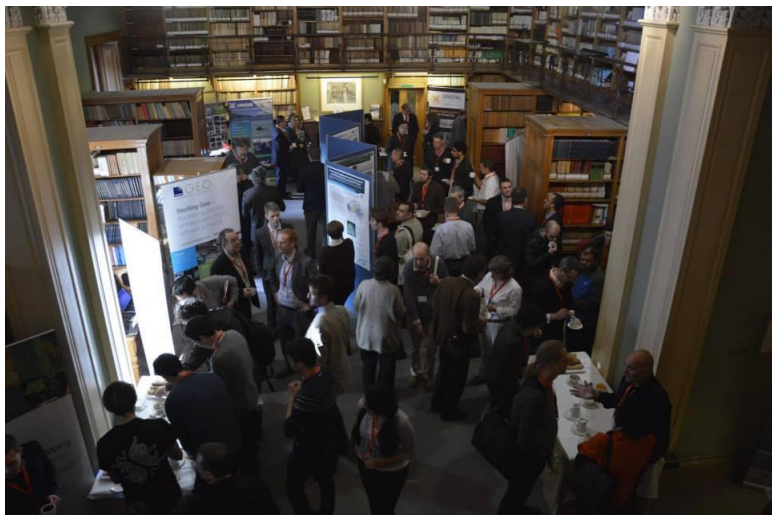


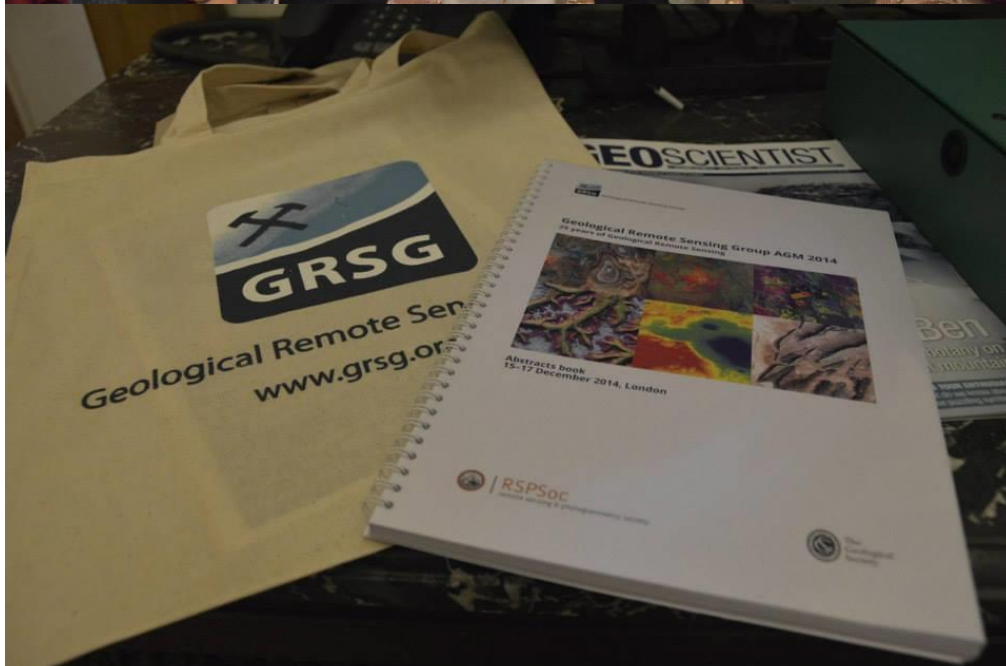
In pictures: 2014 AGM celebrating 25 years of the GRSG



Many abstracts are available for [download on the GRSG website](#) & presentations are available exclusively for members!







Introducing new GRSG committee member ...Alex Gow



Alex joined DigitalGlobe in 2013, working as a Sales Engineer supporting the EMEAR team. Previously, studied geology at Bristol before working in gold exploration in British Columbia, Canada. Out of work am usually found touring on a bicycle or fixing one.

Space Intern Network (SpIN)



CATAPULT
Satellite Applications

The Space Internship Network (SpIN) has been designed to provide an introductory link for undergraduate students considering employment in the space sector, and industry leaders looking to find the most talented and enthusiastic people to ensure the future success of their businesses.

The 2013 pilot scheme was hugely successful with 46 students from a wide range of backgrounds supported in 13 different organisations throughout the sector. In 2014, 47 projects were developed within 20 host organisations. The programme will run once more in 2015, and we would very much like to hear from potential host organisations who have a short-term project (typically of eight weeks duration) in mind, and who would like to offer students the opportunity to gain new skills and an insight into their business. We also welcome applications from students of all disciplines who are enthusiastic to work in the space sector and are keen to develop new skills, applying and building on knowledge they've acquired in their studies to date.

The 2015 SpIN internship scheme is going ahead. If you are interested in applying for projects as they come available and are advertised, you MUST register through http://www.breedeuk.com/SpIN_Registration/SPIN_Interest.html FIRST. Projects will be advertised here as soon as they come available. All those registered before that date will be advised to view the opportunity. Following that it is the applicant's responsibility to return to check for new projects on a regular basis. If you have any questions regarding SpIN, please email spin@reading.ac.uk.

See the [website](#) for further information!

Airbus Defence and Space

Over the last 20 years the Geo-Intelligence programme line of Airbus Defence and Space has developed a global database of offshore seeps. With more than 60 million km² directly available, consisting of over 22,000 potential seepage slicks derived from 19,000 radar scenes (Figure 1), Global Seeps is a cost-effective tool for risk-ranking in new exploration regions, seismic planning and baseline oil pollution mapping.

Offshore oil seep detection using satellite Synthetic Aperture Radar (SAR) is an increasingly established method for assisting in the reduction of exploration risk for offshore frontier basins or for re-evaluating previously explored regions. The presence of oil seepage slicks implies a working hydrocarbon system with leaking traps.

SAR based slick detection techniques rely on observing the variation in return signal and noting any anomalous areas caused by the dampening effect that oil on the sea surface has on wave heights.

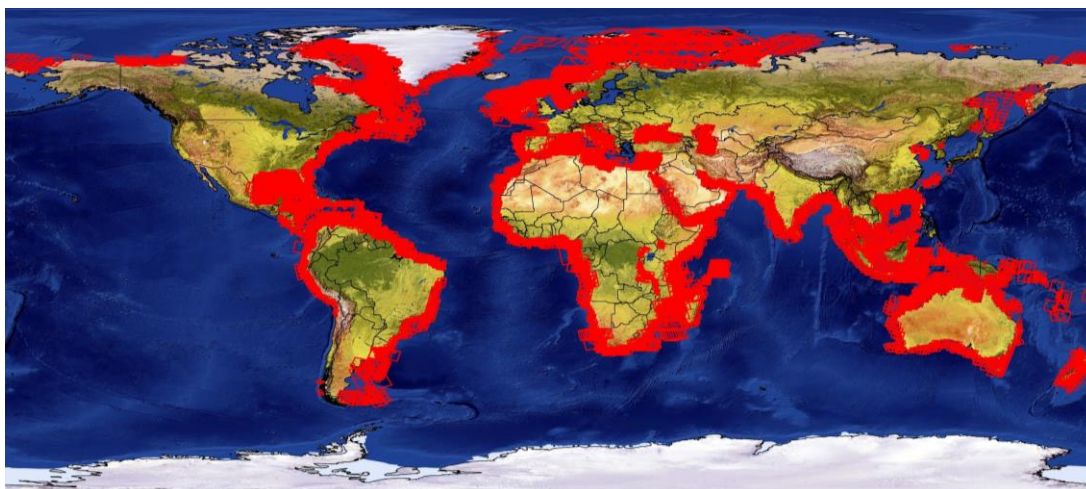


Figure 1 Coverage diagram of the Airbus Defence and Space Global Offshore Seeps Database. Red polygons indicate individual radar scenes contained within the database.

Satellite Slick Detection

Oil migrating to the sea floor is typically transported to the sea surface as a thin coating to gas bubbles. Once at the sea surface the transported oil spreads out rapidly to form a slick, which dampens the amplitude of any sea surface waves, and detected as low or zero energy returns in the SAR data (Figure

2). Critical to the technique is the nature of wave conditions at the time of satellite acquisition. If the amplitude of the sea surface waves is too great the oil will not have a significant influence on wave amplitude. Conversely, if the sea surface is calm, the influence the oil has on wave amplitude will not be significant enough to be discernible on the radar imagery. Therefore not all radar scenes will be optimal for slick detection, having ideal wind speeds of approximately 6-16 knots and relies on weather screening of archive data.

Weather screening is undertaken to establish the most appropriate scenes or, if suitable imagery is not available, tasking is undertaken to acquire new imagery using sensors such as TerraSAR-X. Seeps with high emission rates can produce slicks that can quickly spread over a distance of several kilometres, and under favourable winds and sea states up to 10km or more, offering a large target area to SAR satellite remote sensing platforms. One of the main advantages in using radar data over optical imagery is the cloud cover and light independent nature of the technology.

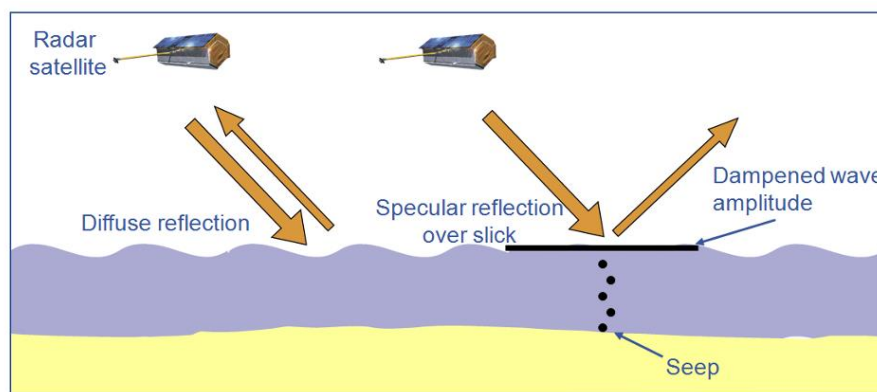


Figure 2 Methodology for oil seep identification on water-bodies, based on the Radar backscatter reduction caused by the dampening effect of oil on wave amplitude.

By collecting imagery from multiple dates and studying the morphology of the slick, a greater level of confidence can be assigned to the features, reducing the likelihood that an area of pollution or local weather conditions are being observed (Figure 3).



Figure 3 Repeating oil slick (dark linear feature) identified from Radar imagery over Lake Tanganyika. The two Radar images have been acquired on separate dates. The surface slick appears to share a common source point and is repeated on an additional 3 scenes over a 10 year period

Continuously Updated

As repeat coverage is critical in increasing the confidence level of previously identified slicks and for identifying discontinuous seepage events, emphasis is placed on adding new scenes to the database. Over 5,000 new scenes were added to the database during 2013-2014 as part of a major update (Figure 4), with a continued commitment to add additional scenes in the coming years. Airbus Defence and Space consults current users of the database when selecting the priority update areas. TerraSAR-X is also being leveraged to acquire imagery in areas of the World lacking radar coverage or for specific customer studies.

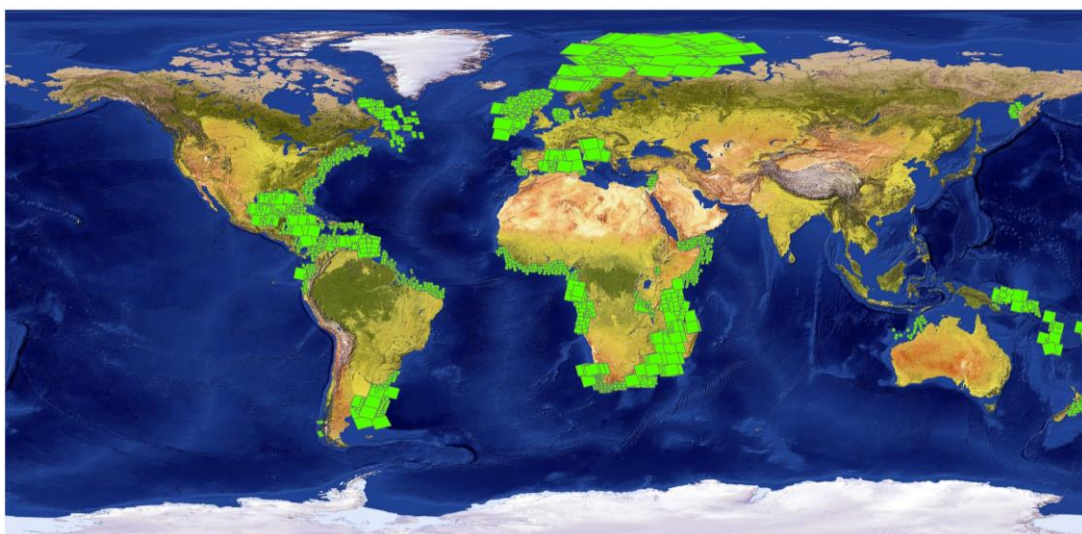


Figure 4 Over 5,000 new scenes added from 2013 – 2014 (shown by the green polygons)

Seismic Integration and Guided Slick Geochemical Sampling

Seep locations can be integrated with a variety of other geological and geophysical datasets to aid the understanding of potential exploration targets. By combining information from multiple sources the context and geological setting of seeps can be assessed. Airbus Defence and Space has been working with the geochemical sampling company AGI on bespoke sampling projects and the seismic multi-client acquisition and imaging specialists Spectrum to produce joint studies tied in with upcoming licensing rounds.

Geochemical sampling of surface slicks can be limited by difficulties in locating slicks if they are episodic or influenced by strong currents. TerraSAR-X radar imagery can be used to guide geochemical sampling in near-real-time by rapidly providing imagery and interpretation layers directly to sampling teams on boats within the survey area (Figure 5). This approach increases the likelihood of a successful sampling program and has been shown to be particularly valuable when combined with historical archive data of likely seepage locations.

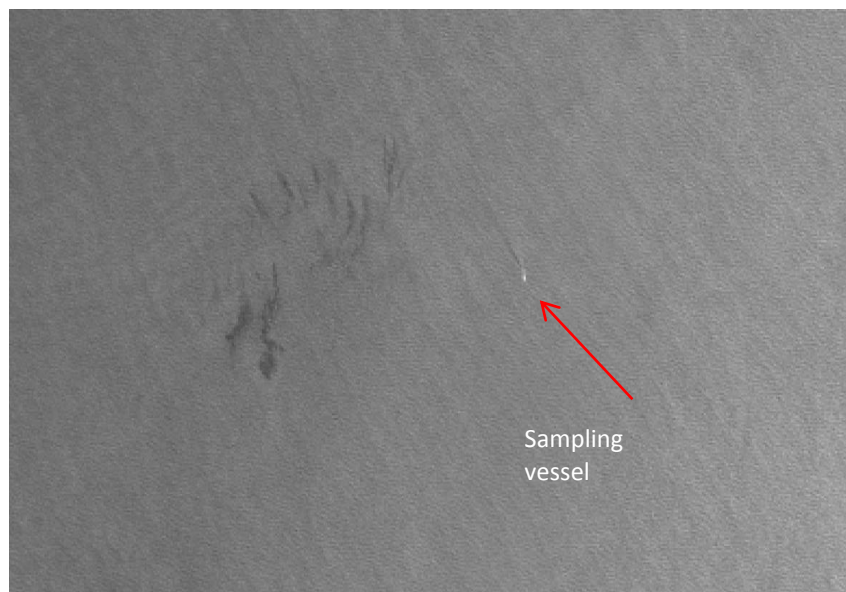


Figure 5. Sampling of sea surface slicks guided by near-real-time imagery and interpretation, provided directly to the vessel

Working with Spectrum, a joint study correlating natural oil seeps identified from satellite data with 2D seismic data has been produced to assist hydrocarbon exploration in the Adriatic Sea.

Results suggested a strong correlation between higher confidence slicks and structural features interpreted from a Spectrum 2D seismic survey acquired offshore Croatia in 2013. Seeps were found to be positioned in association with geological structures and potential seismic-interpreted Direct Hydrocarbon Indicators

(DHIs), suggesting that active hydrocarbon migration is occurring and that a thermogenic source is responsible for some of the many instances of shallow gas interpreted in the seismic lines. In addition some of the slick observations have revealed hidden prospectivity, drawing attention to legitimate potential leads not previously identified by seismic interpretations alone.

An application area which is currently expanding is the use of the database to assist environmental studies in providing a baseline of natural oil slicks which can be assessed against any anthropogenic pollution events.

GIS ready

The Global Seeps Database can be licensed for a specific block, region, continent or as a complete database and includes slick points and outlines in separate layers, and ships and rigs. In addition thumbnail images of each slick at full resolution and the complete SAR scene at 100m resolution are provided. A Seep Browser ARCGIS toolbar allows rapid browsing, selection and viewing of the images relating to individual slicks and slick vectors. A variety of online delivery systems are also available.

Summary

Radar remote sensing methods have proven to be an effective technique in developing a global database of offshore seeps, producing a baseline dataset that can be combined with other information sources to aid the reduction of exploration risk in frontier areas. The characteristics of radar data allow weather-independent observation, with repeat coverage being critical in establishing confidence levels for the observed sea surface features. As the archive of radar scenes continues to develop, new seeps are being observed and the confidence levels of previously identified features reassessed.

Please contact Rebecca Phillips for any questions rebecca.phillips@astrium.eads.net

Top Satellite Image of 2014 is a Gem for Geologists!



Source: [Digital Globe Blog](#)



DigitalGlobe's fourth annual Top Satellite Image of the Year contest began December 8, 2014, and ran through the end of month. The [25 contest images](#) were gathered from the trillions of pixels that were captured by our constellation of satellites last year and selected by DigitalGlobe's employees by popular vote.

The winner was: Rainbow Range in Canada!

MARCH

23 March: **UK Earth Observation Applications Conference**, London

Defra, together with the NERC National Centre for Earth Observation and the UK Space Agency, invites you to a one day conference on the applications of Earth Observation technology. The conference will focus on the EU Copernicus Programme with its strong twin emphases on new environmental information services for the public sector and promoting industrial growth and competitiveness. The conference will also look more widely at the impact of Earth Observation ("EO") in the UK, including a range of national and international initiatives.

The Copernicus programme is one of the EU's space flagship programmes. Over the next 7 years, the EU will invest €3.8Bn in Copernicus, primarily on operational Earth Observation satellites, including €800m on information services targeted at environmental policy makers. On the 3rd April 2014 Copernicus entered its operational phase with the launch of the first satellite called Sentinel -1. Data from Sentinel-1 became publically available in October. Sentinel-2 is due to be launched in May 2015.

The conference on 23rd March 2015 in London brings together the UK public sector, industry including SMEs and academia to network and identify opportunities for EO technology to deliver better environmental policy and to stimulate the UK EO and other business sectors. The European Commission, European Space Agency and EUMETSAT will articulate their vision for Copernicus, and the Copernicus service providers/operators will show their implementation approaches. The conference will also address related initiatives such as the UK's Space for Smarter Government Programme and international collaborations such as the Group for Earth Observations. A common theme is how best to manage, analyse and interpret large data volumes to get the maximum benefit for the UK across the public, commercial and academic sectors.

Book online by 16 March [here](#)

23-27 March: **FRINGE 2015 WORKSHOP**



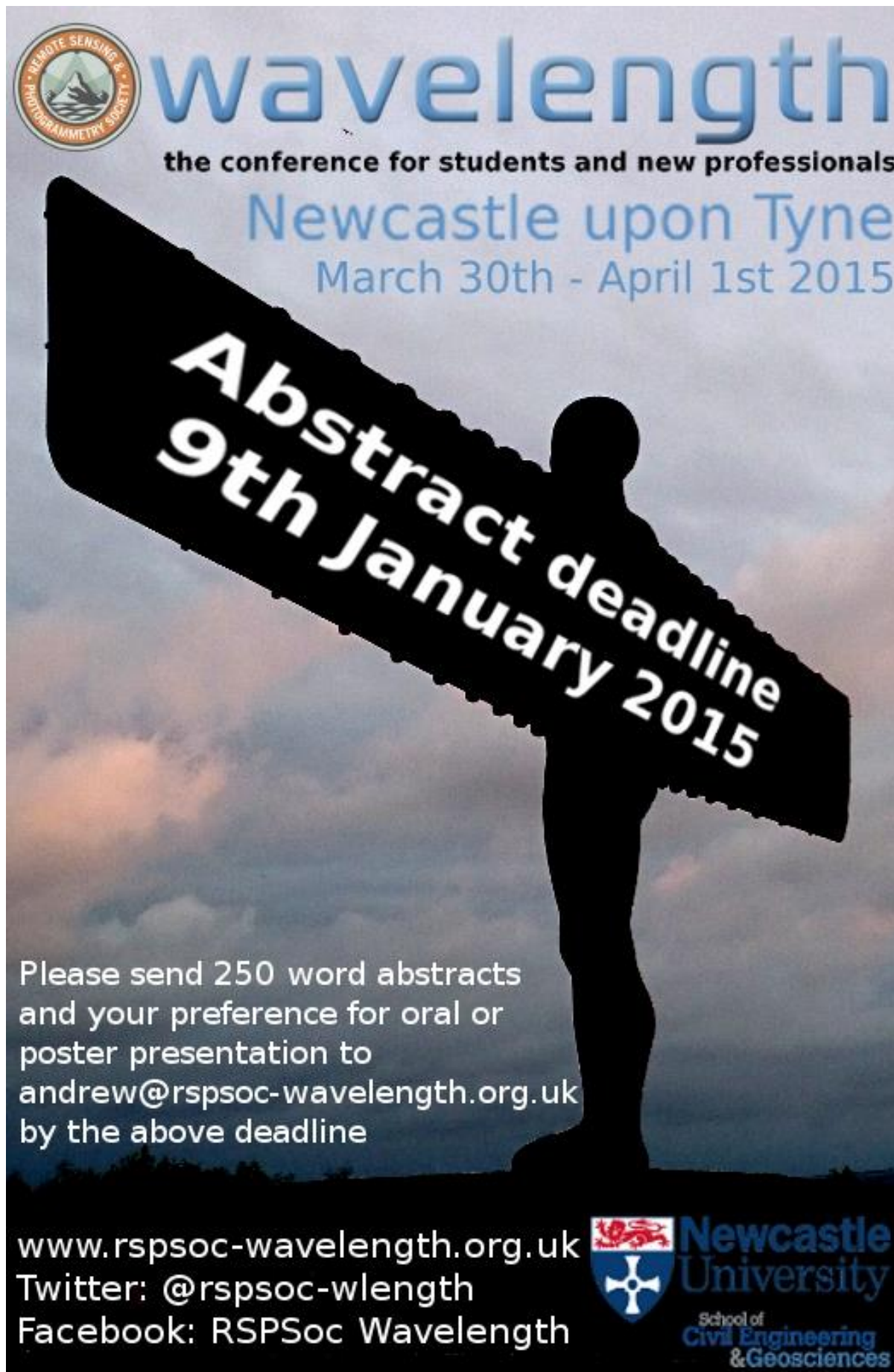
The European Space Agency, in the context of the Scientific Exploitation of Operational Missions (SEOM) element, is organising the 9th International Workshop Fringe 2015 Advances in the Science and Applications of SAR Interferometry and Sentinel-1 InSAR Workshop. The event will be hosted in ESA-ESRIN in Frascati, Italy between 23 and 27 March 2015.


The workshop is open to scientists, Sentinel-1 data users, students, representatives from national, European and international space agencies, and value adding industries.

The official language of the workshop is English. No participation fees will be charged. Participants are expected to finance their own travel and accommodation expenses.

30-1 April: **RSPSoc Wavelength**

The conference for students and new professionals in remote sensing and photogrammetry




 **wavelength**
the conference for students and new professionals
Newcastle upon Tyne
March 30th - April 1st 2015

**Abstract deadline
9th January 2015**

Please send 250 word abstracts
and your preference for oral or
poster presentation to
andrew@rspsoc-wavelength.org.uk
by the above deadline

www.rspsoc-wavelength.org.uk
Twitter: @rspsoc-wlength
Facebook: RSPSoc Wavelength

 **Newcastle
University**
School of
Civil Engineering
& Geosciences

APRIL

12-17: **EUROPEAN GEOSCIENCES UNION GENERAL MEETING**, Vienna, Austria

The EGU General Assembly 2015 will bring together geoscientists from all over the world to one meeting covering all disciplines of the Earth, planetary and space sciences. The EGU aims to provide a forum where scientists, especially early career researchers, can present their work and discuss their ideas with experts in all fields of geoscience. The EGU is looking forward to cordially welcoming you in Vienna!

Abstract deadline has passed. [Register here](#).

14-16: **9th EARSeL SIG Imaging Spectroscopy workshop**

EARSeL's Special Interest Group on Imaging Spectroscopy aims to encourage international discussions among specialists working with innovative Earth Observation technologies.

The 9th meeting, jointly organized by [Trier University](#) and the [CRP – Gabriel Lippmann](#), builds on the 8 previous successful workshops and will be held in Luxembourg in April 2015.

The workshop will cover all themes related to imaging spectroscopy. Hyperspectral remote sensing has started to move from a largely airborne to a fully spaceborne capability with the development of a number of satellite spectrometers, which will be launched in the next few years. Nevertheless, we find an increasing number of airborne and UAV-based systems in the research community with many new possible applications. At the same time the latest imaging spectrometers measure not just the traditional visible and near-infrared regions, but now also cover fluorescence and the thermal- and mid-infrared regions. These technical developments have fostered a number of groundbreaking research fields.

Deadline for submission of abstracts is 30 November 2014.

21-24 April: **2015 AAG Annual Meeting**, Chicago

Welcome to the Association of American Geographers' Annual Meeting in Chicago, Illinois! You will be joined by fellow geographers, GIS specialists, environmental scientists, and other leaders for the latest in research and applications in geography, sustainability, and GIScience. The meeting will be held from April 21 - 25, 2015, and will feature over 4,500 presentations, posters, workshops, and field trips by leading scholars, experts, and researchers. The AAG annual meeting has been held every year since the association's founding in 1904.

[AAG website](#)

24 April: **SKYTECH 2015**,

SkyTech 2015 UAV Conference and Exhibition is a one-day event serving as a platform to define, understand and ultimately integrate UAVs into the commercial sector. SkyTech is completely free to attend and will bring together 60 exhibitors, 40 speakers and over 1000 attendees from a range of targeted industries. SkyTech includes 3 zones. Zones 1 & 2 both include a conference and exhibition, whilst Zone 3 features an exhibition and case study workshops.

With key changes to the industry taking place over the coming months SkyTech aims to provide knowledge transfer, facilitate partnerships and provide a forum to navigate the most complex debates emerging out of the industry. Leading manufacturers, component suppliers, software companies, service providers, existing & prospective end users, UAV associations and academics will come together at this UAV marketplace to provide updates on the latest technology, showcase industry products, and drive forward innovation within the commercial UAV sector. [Register on the website here](#).



GRSG North America Special Sessions

At the ASPRS Imaging and Geospatial Technology Forum

Call for Papers

The **GRSG North America Committee** in collaboration with the **American Society of Photogrammetry and Remote Sensing (ASPRS)** is holding a series of special sessions on geological applications of photogrammetry and remote sensing at the **Imaging and Geospatial Technology Forum (IGTF)** (formerly the ASPRS Annual Conference) to be held at the Tampa Marriott Waterside Hotel, Tampa, Florida, May 4 through May 8, 2015. Oral and poster abstracts (250 words) are requested covering the following proposed themes:

- Applications of Unmanned Aerial Systems (UAS) in the extractive industries
- Advances in geological remote sensing for natural resource exploration
- Applied ecological remote sensing
- Operational uses of remote sensing in the extractive industries

GRSG North America will also be hosting a **networking and social event during the IGTF**. For more information or to submit an abstract (deadline: February 19th, 2015) please e-mail: northamerica@grsg.org.uk. **We look forward to seeing you in Tampa!**



<http://conferences.asprs.org/Tampa-2015/>



Geological Remote Sensing Group
North America Committee

<http://www.grsg.org.uk>

MAY

19-22: Split Remote Sensing Summer School (*SPLITRS* 2015), Thessaloniki, Greece

Environmental Security: Remote Sensing of Natural Resources” (*SplitRS* 2015) is an interactive event between universities, research institutions and private firms. It considers the state-of-the-art remote sensing technology, sophisticated and comprehensive modelling approaches, data analysis, sophisticated software capabilities – all of which is incorporated in the framework of building the well-designed strategy to protect natural resources and public well-being. The proposed topics include the environmental security issues.

The objective of *SplitRS* 2015 is to:

- promote the state-of-the-art Remote Sensing Technology among young professionals
- strengthen young people’s professional networking.

G-ECO Research welcomes participants of all racial and cultural backgrounds and encourages women to apply.

This intensive and advanced, 4-day learning event, presents best insights into most recent techniques learned from top international professors and researchers through lectures and hands-on sessions. Participants will learn about different remote sensing applications using primarily hyperspectral and LiDAR sensors. Learning about information extraction techniques will be an integral part of the school program in 2015.

[Registration is from Feb 01 – May 01 2015.](#)

JUNE

1-4: **77TH EAGE Conference & Exhibition 2015, Madrid, Spain**

The topics have been set and the call for extended abstract for the 77th EAGE Conference & Exhibition 2015 in Madrid is now open! We invite you to submit your abstract and become part of the technical programme during the annual conference next year.

Registration opens	01 December 2014
Deadline conference call for extended abstracts	15 January 2015
Deadline early registration	15 March 2015
Deadline late registration	15 May 2015
Opening 77th EAGE Conference & Exhibition 2015	01 June 2015
Deadline workshops call for extended abstracts	15 February 20

2-5: **WHISPERS Workshop in Hyperspectral Image and Signal Processing: Evolution in Remote Sensing, Tokyo, Japan**

After a record breaking edition in 2014 at EPFL in Lausanne (250 participants), which featured an outstanding **technical program**: <http://www.ieee-whispers.com/index.php/past-editions/2014-lausanne-switzerland>

as well as a number of **exhibiting companies**: <http://www.ieee-whispers.com/index.php/2014-sponsors>

The **2015 edition** of WHISPERS will be held in **Tokyo, Japan**.

Important dates: full paper submission: 31, January 2015

DECEMBER



**GEOLOGICAL
REMOTE SENSING
GROUP**

Special interest group of The Geological Society and the
Remote Sensing and Photogrammetry Society

We are pleased to announce that the 2015 GRSG conference will take place at the European Space Agency in Frascati, Italy on the 9th to 11th December 2015.

The theme for the conference is 'Challenges in Geological Remote Sensing' and will cover the usual range of geological topic and applications with oil and gas sessions organised in conjunction with the EO Sub Committee of the International Association of Oil and Gas Producers. More information will be sent out in the near future.



Bob Agar

AGARSS Pty Ltd
32 Wheelwright Road,
Lesmurdie , WA 6076, Australia
Tel: 619 291 7929
Email: bagar@agarss.com.au

Australia

Richard Bedell

Rengold
940 Matley Lane, suite 17,
Reno NV 89502, USA.
Tel. +1 (775) 337-1545
E-mail: rbedell@rengold.com

USA

Okke Batelaan

Dept. of Hydrology & Hydraulic Eng.
Vrije Universiteit Brussel
Pleinlaan 2, 1050 Brussels, Belgium
Tel: +32-2-6293039
Email: batelaan@vub.ac.be

Belgium

Alvaro Crosta

Geosciences Institute
University of Campinas
P.O. Box 6152, 13083-870
Campinas SP Brazil
Tel: +55-19-3521-5120
E-mail: alvaro@ige.unicamp.br

Brazil

Vernon H Singhroy

Canada Centre of Remote Sensing
588 Booth Street, Room 207 Ottawa
Canada K1A 0Y7
Tel: 613 947 1215
Email:
vern.singhroy@ccrs.nrcan.gc.ca

Canada

Amer Smailbegovic

Photon
Matice Hrvatske 15
Split, Croatia
Tel. +387 61555620
Email. amer@photonsplit.com

Croatia

Athanassios Ganas

Geodynamics Institute
National Observatory of Athens, 118
10 Lofos Nymfon,
PO Box 20048,
Athens, Greece
Tel:+30-210-3490186
Email: aganas@gein.noa.gr

Greece

Takashi Nishidai

NLC Associates
3-33-1-111 Hatagaya,
Shibuya-ku
Tokyo, 151-0072 Japan
Tel: +81 3 3375 7212
E-mail:
takashi.nishidai@nlcrsa.com

Japan

Tod Rubin

Chevron
Chvpk / C212
Box 6046
San Ramon, CA 94583, US
Tel. +1 925 842 0676
Email. TRubin@Chevron.com

USA

Christian Haselwimmer

University of Fairbanks
903 Koyukuk Drive
PO Box 757320,
Fairbanks, AK 99775-7320, USA
Tel: +1 907 4747676
Email: chha@gi.alaska.edu

USA

Mark Nightingale

Shell China Exploration and
Production Company Ltd
26/F, Yanlord Landmark Office, No. 1,
Section 2, Renmin South Road,
Chengdu, 10016, P.R. China
Tel: +86 2865 304050
Email: Mark.Nightingale@shell.com

China

Richard Evers

The Shell Petroleum Development
Company of Nigeria Limited
Port Harcourt, Nigeria
Phone +234 8 0703 21680
Email: Richard.Evers@shell.com

Nigeria

Nurgul Amanova

NCOC
Astana Office, Room 11-11
2 Kunaev Street
010000 Astana
Kazakhstan
Tel: +7 (7172) 35 5861
E-mail: nurgul.amanova@ncoc.kz

Kazakhstan

Freek van der Meer

University of Twente, Faculty ITC
Department of Earth Systems
Analysis
PO Box 6, 7500 AA Enschede,
The Netherlands
Tel: +31 53 487 4444
Fax: +31 53 487 4200
Email: vdmeer@itc.nl
Website: www.itc.nl

Netherlands

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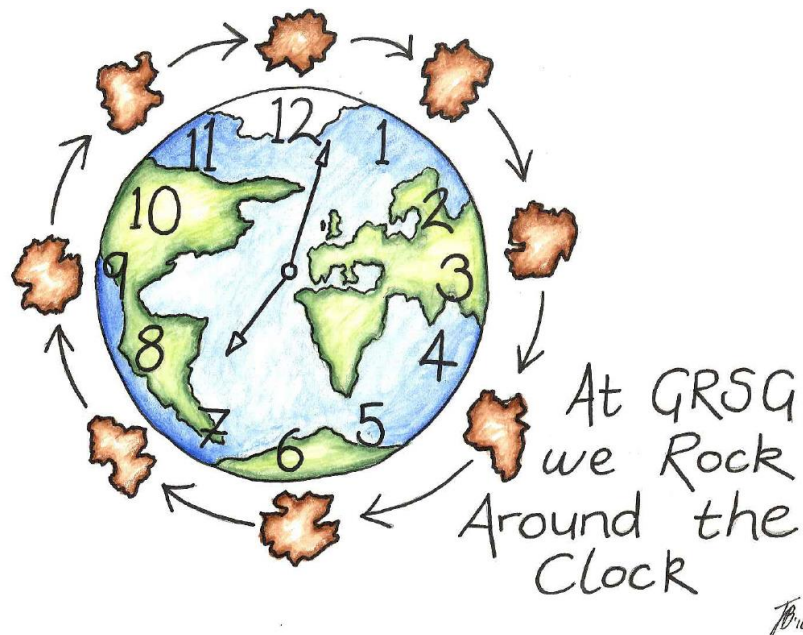
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	<p>Airbus Defence and Space Rebecca Phillips Jupiter Court, 6 Dominus Way Meridian Business Park, Leicester LE3 1UT Tel: +44 (0)116 240 7200 Email: rebecca.phillips@astrium.eads.net Website: www.geo-airbusds.com</p>
	<p>Arup Jason Manning Senior Geologist 13 Fitzroy Street, London W1T 4BQ T : +44 (0)20 77 55 32 14 F : +44 (0)20 77 55 21 21 E-mail : jason.manning@arup.com Website : www.arup.com</p>
 <p>A PANalytical Company</p> 	<p>Analytical Spectral Devices, Inc. Tom Ulrich Marketing Communications Manager 2555 55th Street, Suite 100 Boulder, Colorado 80301 USA (303) 444 6522 Ext. 129 Email : Amanda.griffin@panalytical.com Website : www.asdi.com</p>
	<p>Barrick Gold Corporation Xiaodong Zhou Senior Geologist, Exploration Suite 3700, 161 Bay Street Toronto, Canada M5J 2S1 Tel: 416 3077366 Fax: 416 8610008 E-mail: xzhou@barrick.com Website: www.barrick.com</p>
 <p>British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL</p>	<p>British Geological Survey Luke Bateson Keyworth, Notts, NG12 5GG Tel: 0115 936 3452 Fax: 0115 936 3474 E-mail: lbateson@bgs.ac.uk Website: http://www.bgs.ac.uk</p>

	<p>NPA Satellite Mapping, CGG Services (UK) Ltd Charlotte Bishop Crockham Park, Edenbridge, Kent, TN8 6SR, UK Tel: +441732 865023 Email: charlotte.bishop@cgg.com Website: npa.cgg.com</p>
	<p>Chevron Energy Technology Company Christian Haselwimmer 6001 Bollinger Canyon Road San Ramon CA 94583 United States Email: cehaselwimmer@chevron.com Website: www.chevron.com</p>
	<p>Corescan Pty. Ltd. Neil Goodey Brigette A. Martini Unit 1, 127 Grandstand Rd. Ascot, WA 6104 Australia +61 8 9277 2355 Email: info@corescan.com.au Website: www.corescan.com.au</p>
	<p>DigitalGlobe Azam Butt Regional Marketing Manager - EMEAR 4th Floor, the Building 578-586 Chiswick High Road London W4 5RP United Kingdom +44 (0)203 695 0931 office Email: azambutt@digitalglobe.com</p>
	<p>Exelis Visual Information Solutions Andrew Iwanoczko 2 Arlington Square, Bracknell, Berkshire RG12 1WA Tel: +44(0)1344 747447 Fax: +44(0)1344 742898 Email: andrew.iwanoczko@exelisinc.com Website: www.exelisvis.eu</p>
	<p>Geoimage Pty Unit 13, 180 Moggill Road, Taringa, Qld, 4068 PO Box 789 Indooroopilly, QLD, 4068 Tel: +61- 7-3871 0088 Fax: +61- 7-3871 0042 Email: geoimage@geoimage.com.au Website: www.geoimage.com.au</p>



Marc Goossens
 Geosense/ Ursus Airborne
 Leertendijk 8, 7683 SE Den ham
 tel +31-(0)546-673734
 mob: +31-(0)6-308 908 56
 email: goossens@geosense.nl
www.geosense.nl
www.ursus-airborne.com



HyVista Corporation Pty Ltd
 Peter Cocks
 Street: 11/10 Gladstone Rd, Castle Hill
 NSW 2154, Australia
 Postal: PO Box 437, Baulkham Hills
 NSW 1755, Australia
 phone: [+61 2 8850 0262](tel:+61288500262)
 fax: +61 2 9899 9366
 email: pac@hyvista.com
 web: www.hyvista.com



Intergraph | ERDAS
 Andy Garratt
 EMEA Geospatial Regional Manager
 Delta Business Park,
 Great Western Way,
 Swindon, Wiltshire SN5 7XP
 Cell. +447740768897
 Email: andy.garratt@intergraph.com
 Website : www.erdas.com





**University of Twente,
 Faculty of Geo-Information Science
 and Earth Observation (ITC)**
 Prof. Dr. F.D. (Freek) van der Meer
 Hengelosestraat 99
 PO Box 217
 Enschede, The Netherlands
 Email: f.d.vandermeer@utwente.nl



Itres Research Limited
 Joanne Devries
 Export Controls Manager/Marketing
 Coordinator
 Suite #110 3553 31st Street
 Nw Alberta T2L 2K7
 Canada
 Tel: 403-250-9944
 Email : jdevries@itres.com
 Website: www.itres.com



PhotoSat
 Gerry Mitchell
 President
 1050 West Pender Street, Suite 1710
 Vancouver, BC
 Canada V6E 3S7
 Tel: 604-681-9770
 Fax: 604-681-9790
 Email: Gerry@photosat.ca
www.photosat.ca

	<p>Rio Tinto Mining and Exploration Tim Gray 2 Eastbourne Terrace, London, W2 6LG United Kingdom Tel: +44 (0)7920 810960 Email: timothy.gray@riotinto.com Website: www.riotinto.com</p>
	<p>Southern Mapping Norman Banks 39 Kingfisher drive Fourways 2055 South Africa Tel: +27 11-467-2609 Fax: +27 11-467-3443 Email: norman@southernmapping.com Website: www.southernmapping.com</p>
	<p>Shell International Exploration and Production Nick Kellerman Kessler Park 1, 2288GS Rijswijk The Netherlands Email: nick.kellerman@shell.com Website: http://www.shell.com</p>
	<p>Spatial Energy Robin Leventhal 1881 9th Street, Suite 303, Boulder, Colorado, USA Tel: +1 303 625-1048 Email: rleventhal@spatialenergy.com Website: http://www.spatialenergy.com</p>
	<p>Specim Ana Aranda Teknologiantie 18 A Oulu 90590 Finland Tel: +358 (0)104244400 Email: info@specim.fi Website: www.specim.fi</p>
	<p>SpecTIR Linda Milks Remote Sensing Services 9390 Gateway Drive, Suite 100 Reno, Nevada 89521 U.S.A. 775.329.6660 (office) 775.771.7386 (mobile) 775.329.6668 (fax) Website: www.spectir.com</p>



TRE
Sensing the Planet

TRE

Stefano Cespa
Via Ripa Di Porta Ticinese 79
20143
Italy
Tel: +39 02 434 3121
Email: stefano.cespa@treuropa.com
Website: www.treuropa.com/



UNICAMP



Carlos Roberto de Souza
Group Spectroscopy and Remote
Sensing Labs Geosciences
Institute University of Campinas PO
Box 6152 Campinas, Sao Paulo,
Brazil Ph: +(55) (19) 3521-
4535 Email:
betto@ige.unicamp.br Website:
<http://www.ige.unicamp.br/en>

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Geological Remote Sensing Group

GRSG Membership 2015

Please print out and sign the completed form (we need your signature) and scan and email or return by fax or post

treasurer@grsg.org.uk

Note membership can also be applied for on our website: <https://www.grsg.org.uk>

Eric Peters
Consultant
10 Westfield Avenue,
Harpenden,
Hertfordshire
AL5 4HN
Tel: 44 (0) 1582 713347

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The GRSG does not purport to have a unified view and this newsletter is a forum for the views of all its members and their colleagues in industry, colleagues and government on a free and equitable basis.

This newsletter has been created in Microsoft Word 2011 for Mac by Elspeth Robertson and distributed in pdf format to GRSG members