

OGEO WORKSHOP

SUMMARY REPORT

(HELD AT ESA/ESRIN, 7-9 DEC 2011)



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T A B L E O F C O N T E N T S

1	INTRODUCTION AND BACKGROUND	1
2	WORKSHOP OVERVIEW.....	1
3	WORKSHOP FINDINGS.....	2
3.1	Session 1: OGEO status and achievements.....	2
3.2	Session 2: Data access, quality and standards.....	3
3.3	Session 3: EO for Oil spill detection, mitigation and response	4
3.4	Session 4: EO applications for the Oil and Gas sector.....	4
3.5	GRSG Sessions: Geology focus.....	5
4	OGEO STEERING COMMITTEE MEETING.....	5
5	WAY FORWARD.....	6
APPENDIX A	: WORKSHOP PROGRAM	7
APPENDIX B	: WORKSHOP PARTICIPANTS.....	8

1 INTRODUCTION AND BACKGROUND

On 14-15 September 2010, the European Space Agency (ESA) Directorate of Earth Observation Programmes (EOP) hosted a workshop aimed at assessing new opportunities for the application of earth observation (EO) within the oil and gas (O&G) sector.

The 2010 workshop (<http://earth.eo.esa.int/workshops/gasoil2010/index.html>) represented an initial step towards more sustained dialogue between the O&G industry and EO community. Several concrete recommendations were made by the participants and an implementation Action Development Plan was prepared by the OGEO steering.

Shortly after the 2010 workshop, the Geological Remote Sensing Group (GRSG) invited the OGEO to co-locate the 2011 workshop with the GRSG annual meeting at ESRIN in Frascati. During the 2011 GRSG, one day (December 8) then became the 2011 OGEO workshop.

The 2011 OGEO objectives were to:

- Review progress with respect to the 2010 Action Development Plan
- Organize a 2011 workshop
- Present work initiated to implement the 2010 Action Development Plan
- Present relevant EO applications to the Oil and Gas sector, with special focus on Oil spill response
- Establish closer links between the Geology/Mineral EO communities and the Oil and Gas companies.

2 WORKSHOP OVERVIEW

The 2011 OGEO workshop was composed of four sessions:

- Session 1: OGEO status and achievements
- Session 2: Data access, quality and standards
- Session 3: EO for Oil spill detection, mitigation and response
- Session 4: EO applications for the Oil and Gas sector

The workshop program is given in Annex A. The individual presentations in the separate sessions that have been cleared for public release are provided at

<http://earth.eo.esa.int/workshops/grsg2011/index.php?page=224&type=s>

The combined OGEO/GRSG workshop was attended by 185 external participants from all around the world. A detailed list of all attendees is given in Appendix B.

As expected, the majority of participants (75.5%) were from Europe, but almost quarter of the participants were non-European.

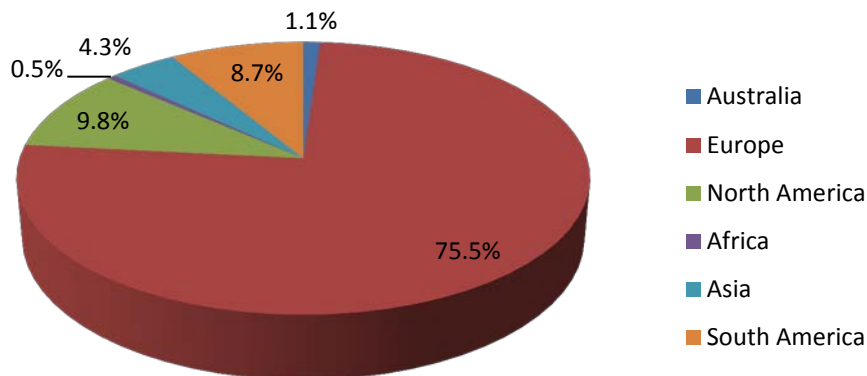


Figure 1. Participant geographic region breakdown

3 WORKSHOP FINDINGS

This workshop report contains a summary of main observations made during the individual presentations and panel discussions.

This report does not contain details on technical discussion in relation to individual presentations. See the [abstract booklet](#) for specifics. All 21 presentations – from the OGEO day - have been made available by the authors and can be downloaded from the [website](#).

3.1 *Session 1: OGEO status and achievements*

- The OGEO steering committee has met on average every other month since the 2010 workshop, with monthly meetings just before the event. The steering committee has welcomed Jerry Helfand (Exxon Mobil) and Roger Abel (NCOC) as new members; Richard Eysers (formerly Shell) had resigned as Chairman, but is still a member of the committee in his role as the current chairman for the GRSG. Peter Hausknecht (Woodside Energy) was elected into the role as current chairman

- EARSC is very pleased to be able to work with the OGEO group representing the interests of the EO Geo-information services sector in Europe.
- In the year since the first workshop EARSC has:
 - Provided secretariat for the OGEO working group
 - Developed the OGEO Portal. The OGEO portal development is a recommendation coming from the 2010 OGEO workshop with the objective to establish better communication between the Oil and Gas and the EO service industrial sectors.
 - Established EARSC working group on Best Practice
 - Supported the organization of the 2nd OG workshop.
- EARSC view OGEO as being a very important initiative to strengthen links between the two communities.
- OGP (International Association of Oil and Gas producers) was introduced as an industry organization and the role of EO for its various tasks and business applications highlighted.
- The OGEO – Web-Portal was presented and participants had the opportunity to get hands-on experience with the tool in a demo set-up in the exhibition hall.
- The portal can be found at www.ogeo-portal.eu and is open to companies that would normally qualify for membership either with EARSC or OGP. Companies interested in joining the portal can contact EARSC (email) to request a user id and password. EARSC will review the request and grant access should the requester fulfill the requirements of being a member.
- It was announced that a Joint Industry project (JIP) managed by the Global Industry Response Group (GIRG) is being initiated. GIRG was established in 2010 as a response to the Deepwater Horizon spill in the Gulf of Mexico. Now the GIRG has produced an Oil Spill Response report with 19 recommendations, and a joint OGP/IPIECA JIP has been formed to take the recommendations forward. A recommended practice for dealing with oil spills will be developed and this is an area where the services provided by the European EO service companies could play an important role. EARSC and ESA will work closely with GIRG in order to maximize the role of EO in this JIP.

3.2 Session 2: Data access, quality and standards

This session had two invited speakers from organizations heavily involved in Earth Observation

- A representative from EuMetSat gave an overview of their current ‘Weather’ satellite data and derived product access policy and the web enabled platform to get the data. The O&G industry has quite an interest in accessing the data archives for hindcasting and historical assessments of MetOcean conditions in areas of exploration and production interest.
- A representative from the German Aerospace Centre talked about their activities on EO processing standards and guidelines. Such initiatives are very important for the industry since they will ensure the delivery of consistent data products and a common approach to processing, analyzing and delivering such products, which is very important especially in Emergency Response situations or when data is exchanged between different companies and projects. Common guidelines and standards will also make it easier for the individual EO

analyst in the O&G industry (and others) to QC and assess data. Data procurement will be made easier if common product standards are established.

3.3 Session 3: EO for Oil spill detection, mitigation and response

With the incidents of Macondo and Montara in mind a session was set-up to highlight the role of EO in the oil spill / contaminants mapping and respective emergency response coordination.

- Tullow Oil reported on their efforts to use both Radar and optical high resolution satellite based monitoring for their off-shore drilling operations. The EO data was used to monitor for accidental oil spills from the platform.
- In one paper the possibility of using hyperspectral sensing to map the effects of hydrocarbons on vegetation was discussed and experimental results presented. Such experiments have been carried out in the past – but no coordinated centralized repository of such information exists.
- The need for EO in spill assessment and as input into the modeling of spill behavior was explained. Both airborne and satellite EO information need to be accessed and integrated in a GIS system to be available to the decision makers. As accurate as possible spill modeling needs to be provided to allow rapid response activities to be initiated; EO is a key contributor for the assessment of wind directions, ocean currents and spill size & movements .
- Other papers presented the SP's options for oil spill response mapping and their capability using state of the art EO monitoring. Such services will be important to be evaluated in the OGP-JIP on oil spill response.

In a plenary discussion panel the session was wrapped up by having various representatives from stake holder organizations talking about the need of EO for oil spill mapping and the availability of such services. The session was chaired by Richard Evers (GRSG / Spatial Energy) and had Colin Grant (BP), Han Wensik (BMT Argoss) and Steve Coulson (ESA) as panel members.

3.4 Session 4: EO applications for the Oil and Gas sector

The afternoon sessions on EO applications were a mixture of different sensor applications (radar and optical) as well as specialized EO activities, for example on setting standards for ice tracking using satellite data or planning pipeline routes with information derived from various EO data sets.

The two sessions were dominated by service providers looking into the O&G applications their portfolio can offer. Some of the presentation integrated the EO component with other geospatial services, which will be a common theme in the future. All EO will come under geo-information in one way or another, and will be presented in geospatial software packages in a wider framework together with many other geospatial data sets.

As an overall observation it was noticed that industry contributions were limited in comparison to the 2010 workshop. Most presentations were provided by service provider companies, research organization or government agencies. There were a good number of O&G participants in the audience – hence the interest was there – but company policies possibly prevent people from giving talks at such events.

3.5 *GRSG Sessions: Geology focus*

The entire 3 day joint workshop was set-up with an ‘OGEO focus day’ in the middle – flanked by two geological orientated days on either side. Applications from both days were relevant to the OGEO community and synergies can be drawn by seeing how one industry applies the technology to its tasks and challenges. Sensor and data processing related talks can benefit both communities. A technology like InSAR for ground movement detection is used by both industries in different applications and any advances or insights in using such information will benefit all stakeholders.

Geological exploration on land also has some synergies, be it for minerals or oil & gas resources mapping, the land surface and its processes are very important. The environmental implications and impact assessments for example are also relevant to both industries and quite a lot of synergies can be drawn sharing the EO experiences in this field.

The opportunity to network across the borders of mining and oil & gas industry – focusing on a special technology application - was welcomed by all participants. The service providers in particular commented that such an opportunity to talk to both industries at the same time was very beneficial.

Suggestions to keep the two communities aligned were made and the workshop as an exchange mechanism welcomed.

4 OGEO STEERING COMMITTEE MEETING

The OGEO steering committee also met during the workshop. The core steering committee is formed by representatives from relevant OGP committees, the GRSG chair, the general secretary of EARSC and with ESA as observer, selected O&G representatives can be invited. During the meeting the OGEO terms of reference were finalized and it was agreed to formalize the relationship between the OGEO, EARSC, GRSG and ESA.

The OGEO Web-Portal is set-up in an initial pilot phase until the end of 2012 or determined otherwise by the steering committee.

The minutes from the meeting on the 9th of December can be viewed by OGEO members on the relevant pages within the OGEO portal – but non members can request a copy by emailing to: secretariat@earsc.org with OGEO 2012 in the reference line.

5 WAY FORWARD

The following recommendations for actions to be taken were proposed by the workshop following discussion in plenary and are summarized here at a high level:

- Formalize the OGEO initiative through Terms of Reference (ToR) and a coordination agreement between the parties involved
- Continuation of the workshops in the coming years
- Facilitate the communication between the EO service providers and the oil and gas industry through the web-portal and enhance its usability and mutual benefits
- Support of the Joint Industry Project on oil spill response
- Assist in establishing EO opportunities and formulate requirements in other JIP or Taskforce projects of the OGP community through the participation of OGEO members in the OGP Geomatics – Geo-information subcommittee

APPENDIX A : OGEO WORKSHOP PROGRAM

Thursday, 8 December 2011		
08:30	OGEO: Introduction	Chair: Peter Hausknecht (Woodside)
08:30	Coulson, Hausknecht & Eyers	Open, OGEO status and achievements
08:50	Geoff Sawyer (EARSC) & Colin Grant (BP)	EARSC & OGP
09:10	Colin Grant (BP)	Overview & JIP
09:40	OGEO Team	Introduction to the OGEO Portal
10:10	OGEO Team	Q&A Discussion
10:40	Coffee Break 1	
11:10	OGEO: Data	
11:10	Harald Rothfuss (EUMETSAT)	Access to EUMETSAT Data
11:25	Stefanie Holzwarth (DLR)	Quality, Standards and Protocols – Working towards certified services based on Earth observation and remote sensing
11:40	OGEO: Leveraging EO for oil spill detection, monitoring & mitigation	Chair: Thomas Heege (EOMap)
11:40	Martin Insley (Tullow Oil)	Satellite Monitoring of Drilling Operations Offshore French Guiana
11:55	Wilson Oliveira (Petrobras)	Understanding the phenomenology of liquid and gaseous hydrocarbon detections and its environmental impacts using PROSPECTIR and SEBASS imagery
12:10	Sigmund Delhi (KSAT)	Maritime surveillance – related to oil rig operations
12:25	Han Wensink (BMT Argoss)	Satellite data and the Oil Spill Information System (OSIS) to serve the O&G industry
12:40	Luck Heathcote (Oil Spill Intl.)	Remote Sensing as a tool in Emergency Preparedness & Response
12:55	Richard Eyers (GRSG)	Panel Discussion - Oil Spill Monitoring Needs and Requirements
13:40	Lunch	
15:10	OGEO: EO Applications for the Oil & Gas Industry I	Chair: Charlotte Bishop (GRSG/FNPA)
15:10	Stephan Brusch (DLR)	Remote Sensing Products for environmental assessment at offshore platforms and pipelines
15:25	Jason Manning (Arup)	Application of Remote Sensing Technologies for Engineering for Onshore Pipelines in Active Dune Fields
15:40	Thomas Heege (EOMap)	Satellite based impact monitoring in coastal and offshore applications: Advantage and examples of harmonized and automated monitoring approaches
15:55	Denis Nazarenko (LookNorth)	Fostering Increased Adoption of Remote Sensing Technology for Sustainable Oil and Gas and Mining Activities in Northern Environments
16:10	Luciôla Alves Magalhães (UNICAMP)	Spectral Responses of Eucalyptus Trees Submitted to Natural Hydrocarbon Seepages: An Integrated Approach from Leaf- to Canopy- Scales
16:25	Coffee Break 2	
17:05	OGEO: EO Applications for the Oil & Gas Industry II	Chair: Jerry Helfand (Exxon Mobil)
17:05	Lutz Petrat (Astrium)	TerraSAR-X - A Spaceborne Toolbox for Oil-/Gas Exploration and Monitoring
17:20	Serge Rizanoff (VisioTerra)	20 years of petroleum routes
17:35	Johanna Granda (Altamira)	Operational applications for the Oil and Gas industry measuring ground motion with radar satellites (InSAR)
17:50	Valentin Mikhailov (Russian Ac. Of Sci.)	Joint analysis of PSInSAR and repeated leveling data for monitoring ground motions in the Romashkino oil exploration area (Russia)
18:05	Kim Partington (Polar Imaging)	EarthImages: a new satellite image planning and access service tailored for the oil and gas sector (moved)
18:20	Des Power (C-Core)	Standards and Guidelines for the use of Satellite based ice information in the Oil and Gas Sector
18:35	Buses to Cheese & Wine	
19:00	Cheese & Wine Tasting	

Figure 1. The OGEO Workshop Programme.

APPENDIX B : WORKSHOP PARTICIPANTS OGEO/GRSG COMBINED

1	Acernese, Fausto	Università di Salerno	ITALY
2	Alquier, Remi	e-GEOS	ITALY
3	Amanova, Nurgul	NCOC	KAZAKHSTAN
4	Amici, Stefania	INGV	ITALY
5	Andra Baduge, Anura	Luleå Uni. of Technology	SWEDEN
6	Argyriou, Athanasios	SEES	UNITED KINGDOM
7	Arnaud, Alain	Altamira Information S.L.U	SPAIN
8	Bachmann, Martin	DLR - DFD	GERMANY
9	Bachofer, Felix	University of Tuebingen	GERMANY
10	Backes, Dietmar	UCL	UNITED KINGDOM
11	Banks, Norman	Southern Mapping Company	SOUTH AFRICA
12	Bardelli, Lucio	ITS spa	ITALY
13	Barone, Fabrizio	University of Salerno	ITALY
14	Bateson, Luke	Brisitsh Geological Survey	UNITED KINGDOM
15	Ben Dor, Eyal	Tel Aviv University	ISRAEL
16	Benson, David	DigitalGlobe International	UNITED KINGDOM
17	Bentz, Cristina	Petrobras	BRAZIL
18	Berg, Anders	LKAB	Sverige
19	Biagini, Bruno	e-GEOS	ITALY
20	Bishop, Charlotte	Fugro NPA Limited	UNITED KINGDOM
21	Bonano, Manuela	IREA-CNR	ITALY
22	Bonifazi, Giuseppe	Sapienza University of Rome	ITALY
23	Boyd, Chris	ACA Howe International	UNITED KINGDOM
24	Brechbuhler de Pinho, Guilherme	FotoTerra	BRAZIL
25	Brown, Laura	Mappa Mundi	UNITED KINGDOM
26	Brown, Michael	Mappa Mundi & GIS	UNITED KINGDOM
27	Bruce, Napier	British Geological Survey	UNITED KINGDOM
28	Brunori, Carlo Alberto	INGV	ITALY
29	Buchholz, Tim	ESA-ESRIN	ITALY
30	Buongiorno, Maria Fabrizia	INGV	ITALY
31	Cannell, Alastair	DigitalGlobe International	UNITED KINGDOM
32	Capes, Ren	Fugro NPA Ltd	UNITED KINGDOM
33	Carlston, Christopher	Spatial Energy	AUSTRIA
34	Carter, Adam	ExxonMobil	UNITED STATES
35	Casey, Simon	European Space Imaging	GERMANY
36	Chevrel, Stephane	BRGM	FRANCE

37	Cipriani, Ivan	Sapienza Università di Roma	ITALY
38	Clarke, Jim	BP	UNITED KINGDOM
39	Clementi, Valentina	ENI	ITALY
40	Costantini, Mario	e-GEOS	ITALY
41	Crisford, Gareth	Exelis	UNITED KINGDOM
42	Crowe, Sage	Spatial Energy	UNITED STATES
43	Cunha, Felipe	Petrobras	BRAZIL
44	De Paulis, Riccardo	Eni E&P	ITALY
45	Dehli, Sigmund	Kongsberg Satellite Services	NORWAY
46	Denk, Michael	M. Luther University Halle	GERMANY
47	Dennis, Nazarenko	LOOKNorth	CANADA
48	Dhont, Damien	TOTAL SA	FRANCE
49	Dittmann, Christoph	Shell Global Solutions	NETHERLANDS
50	Eide, Lars Ingolf	Norwegian Space Centre	NORWAY
51	Elia, Manuela	e-GEOS	ITALY
52	Empilli, Ernesto	H2Q Consulting Srl	ITALY
53	Eyers, Richard	GRSG - Spatial Energy	UNITED KINGDOM
54	Farquhar, Clive	Logica	UNITED KINGDOM
55	Fernando, DSM Chandima	University of Twente	NETHERLANDS
56	Fitriani, Agustin	University of Twente	NETHERLANDS
57	Fortescue, Alex	Southern Mapping Company	SOUTH AFRICA
58	Frassy, Federico	L@RS Politecnico Milano	ITALY
59	Friese, Andrea	BGR	GERMANY
60	Gale, L.P.	BMT ARGOSS	NETHERLANDS
61	Garratt, Andy	Intergraph ERDAS	UNITED KINGDOM
62	Gerry, Mitchell	PhotoSat Information Ltd	CANADA
63	Giordani, Francesco Saverio	Thales Alenia Space	ITALY
64	Glaesser, Cornelia	M. Luther University Halle	GERMANY
65	Glijer, David	ArcelorMittal	ANDORRA
66	Gomez Cid, Celestino	GMV	SPAIN
67	Goossens, Marc	Ursus-airborne - Geosense	NETHERLANDS
68	Grabak, Ola	ESA	ITALY
69	Grant, Colin	BP Exploration	UNITED KINGDOM
70	Grebby, Stephen	British Geological Survey	UNITED KINGDOM
71	Grujters, Stephan	Geological Survey of the Netherlands	NETHERLANDS
72	Guerre, Louis-Francois	NOVELTIS	FRANCE
73	Guidetti, Veronica	ESA	ITALY
74	Gyuris, Peter	Geonardo Ltd	HUNGARY
75	Hagner, Olle	Smartplanes	SWEDEN
76	Hall, Richard	Kongsberg Satellite Services	NORWAY
77	Harris, Philip	GSI Consulting	SOUTH AFRICA
78	Hausknecht, Peter	Woodside Energy Ltd	AUSTRALIA
79	Heege, Thomas	EOMAP GmbH & Co.KG	GERMANY
80	Helfand, Jerry	ExxonMobil	UNITED STATES

81	Holma, Hannu	Specim Oy	FINLAND
82	Holzwarth, Stefanie	DLR	GERMANY
83	Hosseinjani Zadeh, Mahdieh	Shiraz University	IRAN, ISLAMIC REPUBLIC
84	Hugue, Fabien	McGill University	CANADA
85	Insley, Martin	Tullow Oil	UNITED KINGDOM
86	Jauregui Albarran, Sergio	SGM	MEXICO
87	Jordan, Colm	British Geological Survey	UNITED KINGDOM
88	José de Oliveira, Wilson	Petrobras	BRAZIL
89	Karjalainen, Harri	Specim Oy	FINLAND
90	Karnieli, Arnon	Ben Gurion University	ISRAEL
91	Kaufmann, Hermann	GFZ	GERMANY
92	Kellerman, Nicolas	Fugro NPA Ltd	UNITED KINGDOM
93	Kennedy, Paul	MDA - Geospatial Services	CANADA
94	Khan, Shuhab	University of Houston	UNITED STATES
95	Koning, Thomas	DLR	GERMANY
96	Kopaèková, Veronika	Czech Geological Survey	CZECH REPUBLIC
97	Kuehn, Friedrich	BGR	GERMANY
98	La Marra, Daniele	H2Q Consulting Srl	ITALY
99	Lana Sanchez, Francisco Javier	SGM	MEXICO
100	Landers, Mark	SpectIR LLC	UNITED STATES
101	Lanza, Vincenzo	Intergraph	ITALY
102	Leezenberg, Pieter Bas	Hansje Brinker	NETHERLANDS
103	Lefort, Thomas	Metaaps	SPAIN
104	Leidig, Mathias	University of Portsmouth	UNITED KINGDOM
105	Lozzi, Silvia	e-Geos	ITALY
106	Magalhaes, Lucíola	UNICAMP	BRAZIL
107	Manning, Jason	Arup	UNITED KINGDOM
108	Manunta, Michele	IREA-CNR	ITALY
109	Marangi, Mario	PLANETEK ITALIA	ITALY
110	Marchesi, Andrea	Politecnico of Milan	ITALY
111	Marsh, Stuart	British Geological Survey	UNITED KINGDOM
112	Marzioletti, Pablo	Sapienza Universita di Roma	ITALY
113	Mazzanti, Paolo	NHAZCA S.r.l.	ITALY
114	Mc Whirter, Johanna	PhotoSat Information Ltd	CANADA
115	Meekes, Jozef (Sjef)	TNO	NETHERLANDS
116	Meroni, Alberto	Exelis	ITALY
117	Michoud, Clément	University of Lausanne	SWITZERLAND
118	Miguel Lago, Monica	EARSC	SPAIN
119	Mikhailov, Valentin	Inst. of Physics of the Earth	RUSSIAN FEDERATION
120	Mitchell, Gerry	PhotoSat	CANADA
121	Mitraka, Zinovia	Trainee	ITALY
122	Momodu, Vincent	NEMA	NIGERIA

123	Morris, Cathy	Serco	ITALY
124	Morucci, Carlo	e-GEOS	ITALY
125	Mouratidis, Antonios	ESA	ITALY
126	Mueller, Andreas	DLR	GERMANY
127	Mumelter, Michael	Geosat Technology AG	GERMANY
128	Murphy, Samuel	UNICAMP	BRAZIL
129	Nemirow, Michael	MDA Geospatial Services	CANADA
130	Nishidai, Takashi	NLC Associates	JAPAN
131	Novali, Fabrizio	TRE srl	ITALY
132	Nygrén, Petri	Specim Oy	FINLAND
133	O'Keeffe, Andrew	Virtualis Ltd	UNITED KINGDOM
134	Pagani, Massimo	Intergraph Italy LLC	ITALY
135	Paglia, Luca	IREA - CNR	ITALY
136	Pajot, Emmanuel	SPIE - OGS	FRANCE
137	Pantaloni, Marco	ISPRA	ITALY
138	Partington, Kim	Polar Imaging Limited	UNITED KINGDOM
139	Pascucci, Simone	CNR IMAA	ITALY
140	Pasquali, Paolo	Sarmap SA	SWITZERLAND
141	Paziani, Simone	LOT Oriel Italia	ITALY
142	Perera, Mali	CST Ltd	UNITED KINGDOM
143	Peters, Eric	Consultant	UNITED KINGDOM
144	Petrat, Lutz	Astrium GEO IS	GERMANY
145	Picchiani, Matteo	Tor Vergata Uni. of Rome	ITALY
146	Pignatti, Stefano	CNR	ITALY
147	Piscini, Alessandro	INGV	ITALY
148	Powell, William	ExxonMobil URC	UNITED STATES
149	Power, Desmond	C-CORE	CANADA
150	Riazanoff, Serge	VisioTerra	FRANCE
151	Roache, Tony	CSIRO	AUSTRALIA
152	Roberto de Souza Filho, Carlos	State University of Campinas	BRAZIL
153	Rocca, Alfredo	Sapienza University of Rome	ITALY
154	Rogers, Catherine	SciSys UK Ltd	UNITED KINGDOM
155	Rompelman, Marcel	Ursus-Airborne	NETHERLANDS
156	Rothfuss, Harald	EUMETSAT	GERMANY
157	Sabra, Henrik	Avannaa Resources Ltd	DENMARK
158	Santovito, Maria Rosaria	CO.RI.S.T.A.	ITALY
159	Sawyer, Geoff	EARSC	BELGIUM
160	Scholte, Klaas	Agip KCO	ITALY
161	Schroeder, Manfred	EOMAP	GERMANY
162	Senna, Carlos	Petrobras	BRAZIL
163	Serafini, Claudio	e-GEOS	ITALY
164	Serranti, Silvia	Sapienza University of Rome	ITALY
165	Silva, Jose Ribamar	Petrobras	BRAZIL
166	Soares, Mauricio	Envisoft	BRAZIL

167	Stavri, Andre	MDA	CANADA
168	Stephen, Achal	ITRES Research Limited	CANADA
169	Stoeckel, Britt-Mari	LKAB	SWEDEN
170	Taranik, Dan	BHP Billiton	SINGAPORE
171	Teeuw, Richard	University of Portsmouth	UNITED KINGDOM
172	Thorning, Leif	GEUS	DENMARK
173	Tomonori, Deguchi	NMCC Ltd.	JAPAN
174	Tona, Calogera	ESA	ITALY
175	Tramontana, Gianluca	University of Tuscia	ITALY
176	Tukiainen, Tapani	GEUS	DENMARK
177	Vieira da Rocha, JoĂo Renato		BRAZIL
178	Vitaglione, Diego	LOT ORIEL	ITALY
179	Walker, Nick	eOsphere Limited	UNITED KINGDOM
180	Webb, Gerry	CST Ltd	UNITED KINGDOM
181	Weinelt, Martin	IFM - GEOMAR	GERMANY
182	Weinmann, Claudia	EOMAP	GERMANY
183	Wendt, Lorenz	Freie Universitat Berlin	GERMANY
184	Wensink, G.J.	BMT ARGOSS	NETHERLANDS
185	White, Daniel	Oil Spill Response	UNITED KINGDOM
186	William, Jeffery	Fugro-NPA Ltd	UNITED KINGDOM
187	Witz, Dennis	Spectral Evolution	UNITED STATES
188	Wright, Conrad	SpecTIR LLC	UNITED STATES
189	Wylde, Richard	ExxonMobil	UNITED KINGDOM