



Interactive Panel Discussion



Panel members:

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Program



- Introduction HYRESSA project
- Introduction Interactive Panel Discussion
- Interactive Panel Discussion
- Closure and concluding remarks



HYRESSA

HYperspectral REmote Sensing in Europe – specific Support Actions

**“Towards an improved access to
hyperspectral data across Europe”**

Ils Reusen
VITO

- HYRESSA (Contract No 026194) is a FP6 Accompanying Measure (implemented as Specific Support Action-SSA)
Foresight studies and exploratory workshops to
 - demonstrate scientific need in Europe
 - explore strategies to build a European network of facilities and to coordinate a Research Infrastructure at European level
 - support e.g.ESFRI in developing their FP7 roadmap and policy-makers



Need



- Widespread access to, use and exchangeability of hyperspectral images remains a problem in Europe
- Need to optimize data access to and streamline the use of hyperspectral images and operations of hyperspectral sensors at European level



10 participants (providers and/or users) from
9 different countries

- VITO (Belgium)
- DLR (Germany)
- RSL (Switzerland)
- GFZ (Germany)
- WU (The Netherlands)
- INTA (Spain)
- ISBE ASCR (Czech Republic)
- TO (Estonia)
- U Helsinki (Finland)
- U Edinburgh (UK)



- Start: 1 February 2006 Duration: 24 Months

Task	Duration	Leading Participant	month from project start																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
AM1 Management of HYRESSA		VITO NV	M1				M4						D5	M7												D11
Management of HYRESSA	24m																									
AM2 Coordination		VITO NV	M1				M4							M7					M10				M13			D12
Coordination	24m																									
Kick off meeting	2d		★																							
Final report	1m																									
AM3 Dissemination		VITO NV			D1					M6								M9								M15/D1
Website development	2m																									
Website maintenance	21m																									
Presentations, publications	12m																									
AM4 Contact database		GFZ			M2	M3/D2																				
Unification of contact database	2m																									
Literature study	1m																									
Internet study	1m																									
AM5 SWOT and User Needs workshop		DLR					M5	D3																		
Preparation of workshop	3m																									
User need workshop	3d						★																			
Workshop report	1m																									
AM6 Questionnaire on User Needs (QUN)		RSL									D4															
Preparation of questionnaire	2m																									
Evaluation of questionnaire	2m																									
Evaluation report	1m																									
AM7 Exploratory workshop		WU																	M8	D7						
Preparation of workshop	3m																									
Exploratory workshop	3d																									
Workshop report	1m																									
AM8 Review and refinement protocols		INTA																								
Review and refinement protocols	3m																									
Protocol meeting	2d																									
Protocol report	1m																									
AM9 Future collaboration plan		UEDIN																								
Future collaboration plan	2m																									
Future collaboration meeting	2d																									★

Exploratory Workshop as special session of ISPMSRS07, Davos, 14-15 March 2007



- Month 1-6:
 - to identify European providers and users of hyperspectral remote sensing data
 - > build provider and user contact database (GFZ)
 - to investigate the Strength-Weakness-Opportunity-Threats (SWOT) of the field of hyperspectral remote sensing in Europe
 - > SWOT and User Need workshop (DLR)



- Month 7-12:
 - to identify the European User Needs of the hyperspectral remote sensing research community (in terms of accuracy, quality, formats, protocols of and access to hyperspectral remote sensing data)
 - > Questionnaire on User Needs-QUN (RSL)



- Month 13-18:
 - to explore strategies to build a European network of Hyperspectral Remote Sensing facilities and to coordinate a future European Hyperspectral Remote Sensing Research Infrastructure
 - to investigate how to refine existing protocols in compliance with standards (cfr. EU initiative INSPIRE)
- > Exploratory workshop jointly organised with the 10th Intl. Symposium on Physical Measurements and Signatures in Remote Sensing (Davos (CH), March 12.-15., 2007) <http://www.ispmsrs07.org/> (WU)

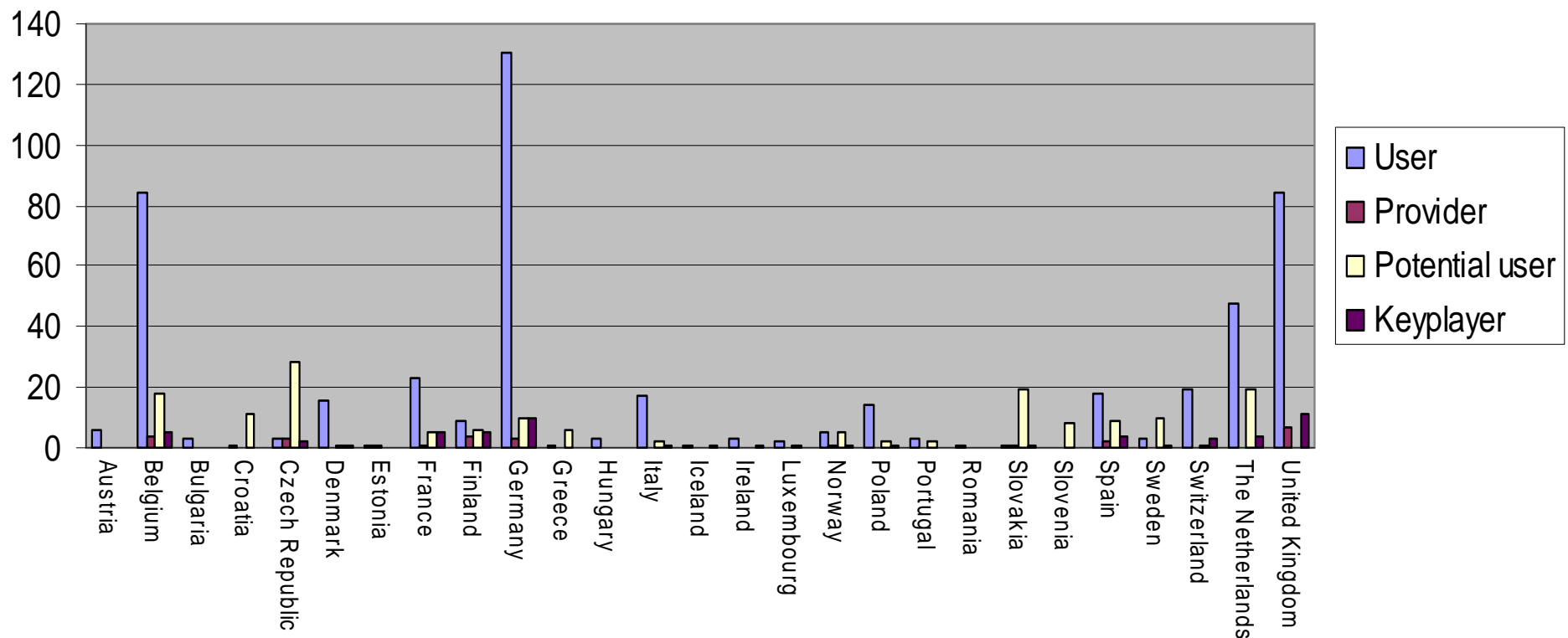


- Month 19-24:
 - to review existing protocols related to acquisition, calibration, processing of hyperspectral remote sensing data and in-situ measurements and to refine protocols in compliance with standards
 - > Protocols review and refinement (INTA)
 - to design a plan for future collaboration related to a European Hyperspectral Remote Sensing Research Infrastructure to move **“towards an improved access to hyperspectral data in Europe”**
 - > Future collaboration plan (U Edinburgh)

- To **identify European users and/or providers** of hyperspectral data:

about **700 users and/or providers** of hyperspectral data identified from **27 countries** (23 member states, Iceland, Norway, Switzerland, Croatia)

Contacts geographical distribution



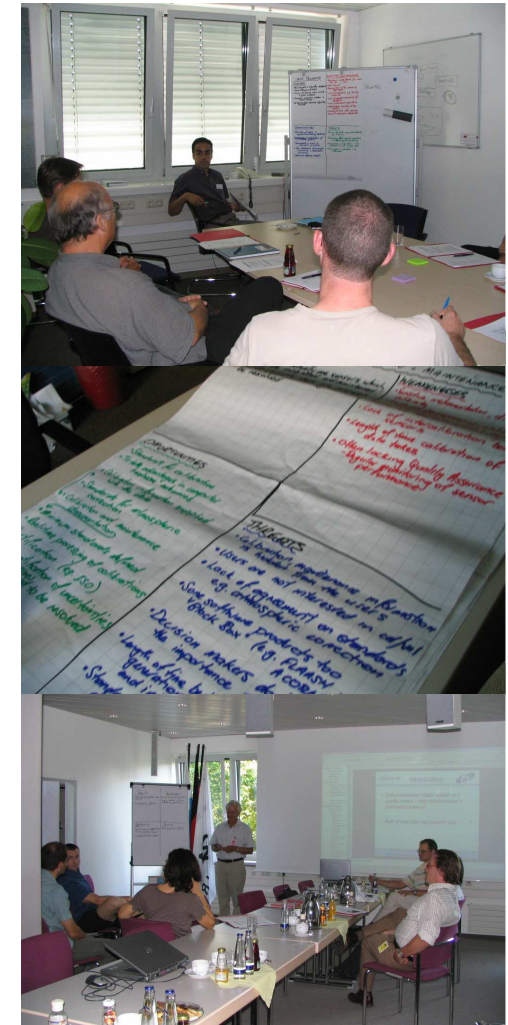
- To investigate the **Strengths-Weaknesses-Opportunities-Threats** (SWOT) and to identify the **User Needs** of the scientific hyperspectral remote sensing community:

SWOT and User Needs workshop, 5-6 July, 2006, DLR, Oberpfaffenhofen

35 participants from 15 different countries

4 splinter groups discussed 4 topics:

- Management of hyperspectral campaigns
- Hyperspectral sensors (calibration, operation, maintenance),
- Data processing
- Application of hyperspectral data



User Needs identified at the SWOT and User Needs workshop are:

- * **Standardization**
- * More **transparency** on calibration processes
- * **European platform** for hyperspectral remote sensing
- * **Education and training**

Workshop report can be downloaded from
<http://www.hyressa.net>



Results (5/5)



- **Questionnaire on User Needs (QUN)** available until 09/02/2007 from the HYRESSA website
Evaluation results presented by Jens Nieke



Post-HYRESSA



- HYRESSA is a starting point
- Goal: European Hyperspectral Remote Sensing Research Infrastructure
 - Network of facilities
 - Transnational access
 - Research projects

to optimize data access to and streamline the use of hyperspectral images and operations of hyperspectral sensors at European level



More information



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- Presentations of panel
- Explore strategies to build and coordinate a Europe-wide network of hyperspectral remote sensing facilities
- Panel's opinion on opportunities, pitfalls, challenges for developing such an infrastructure



- Based on statements and opinions, following themes are dealt with
 - Are hyperspectral data unique?
 - The user community for hyperspectral EO data
 - Accessibility of hyperspectral data and products
 - The role of standards and protocols
 - Building an infrastructure
- Audience agree/disagree with the panel's opinion
- General agreement not required
- But which are possible directions (that will be further explored in the Interactive working session tomorrow)



- Remote sensing is the science of deriving information about the Earth's land and water areas upon measurement of electromagnetic energy reflected or emitted from the features of interest (Campbell 1987)
- Imaging spectroscopy (or hyperspectral remote sensing) is the acquisition of images in hundreds of registered, contiguous spectral bands such that for each picture element of an image it is possible to derive a complete reflectance spectrum (Goetz 1992)



- Spectral range (350 nm – 14 μ m)
 - VNIR
 - SWIR
 - MIR
 - TIR
- Platform
 - Airborne
 - Spaceborne
 - In-situ



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To the panel members:

- Which aspect of other EO infrastructure do you envy most and why?
- What is the strength of your own infrastructure?
- Pitfalls/changes/improvements?



- Are hyperspectral data unique?
- The user community for hyperspectral EO data
- Accessibility of hyperspectral data and products
- The role of standards and protocols
- Building an infrastructure



- The quantitative information on bio-geochemical earth surface properties which can be derived from hyperspectral data make them a unique source of EO data
- The potential of hyperspectral remote sensing data is not yet fully understood and explored



- Currently, the available knowledge, products and services on hyperspectral data acquisition and processing is too scattered over different specialized research groups
- Hyperspectral data are relevant for broad range of applications (e.g., ecology, limnology, geology, urban applications), however users from application domain need to be made aware of this

- Applied end-users want standardized products which can be searched and accessed: central access to existing and future data and products is required
- Through close cooperation between users (in situ data) and producers (image data) the quality of hyperspectral data based products can be improved



- Added value of hyperspectral remote sensing can only be capitalized through close cooperation and transparency within processing cycle
- Agreement on standardization delays the development of an operational infrastructure



- Use the momentum: hyperspectral remote sensing is a full-grown technology which needs to be pushed into the application domains; however, as a first step the available (and scattered) knowledge, facilities, data and scientists need to be structured
- End-users requirements are main priority when building a research infrastructure ('the customer is the king')



Concluding remarks



The HYRESSA team thanks the panel and the audience for the interesting discussion and interaction