



ENDORSE

ENergy DOWnstReam SErvices

Status Dec. 2012 - 2 slides per services

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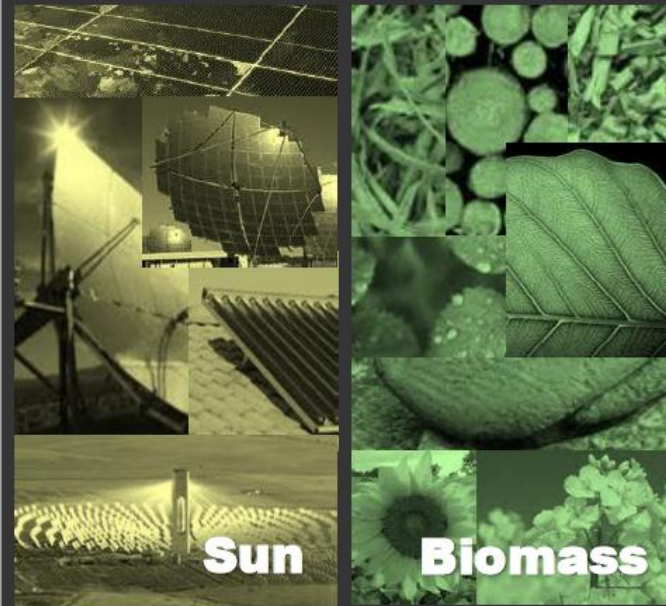
ENDORSE Coordinator: lucien.wald@mines-paristech.fr

ENDORSE, in one slide

Measures and observations



10 services



Sun

Biomass



Daylighting



Load balancing

CUSTOMERS

*Pre-market
downstream
services in
renewable
energies*

Ten partners

Energy experts:

- Transvalor (fr)
- Flyby (it)
- Hochschule ULM (de)
- ENTPE
- 3E
- JRC

Research centers:

- ARMINES (fr)
- DLR (de)
- University of Genova (it)

User interaction experts:

- iCons (it)



Earth observation inputs



GMES MACC products

Irradiance (HC3, SOLEMI)
RAD cloud properties (APOLLO)
Aerosols and TCWV
AER (aerosol) forecast
McClear (clear-sky)

GMES space components

MSG (HRV, vis-2, thermal bands)
MERIS (fPAR, NDVI, level1B)
SPOT-4 and -5

Other products

CORINE land cover (EEA)
GlobCover (ESA)
GeoLand (LAI)
Eumetsat CLM
SRTM -> TerraSAR DTM

Meteo data

Numerical weather model
Ground station measurements

S3: « Irradiance forecasts »

Objective: Providing forecast of direct irradiance with a horizon of up to 48 h.

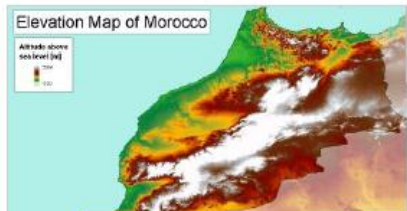


© DLR

State of the art: Solar energy production forecast was so far based on numerical weather prediction providing global irradiance in a 3 hour interval only



S5: « CSP GIS for Morocco »



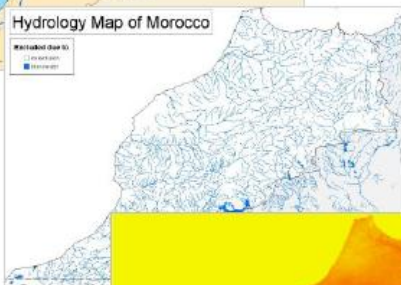
Elevation



Landcover



Electricity network

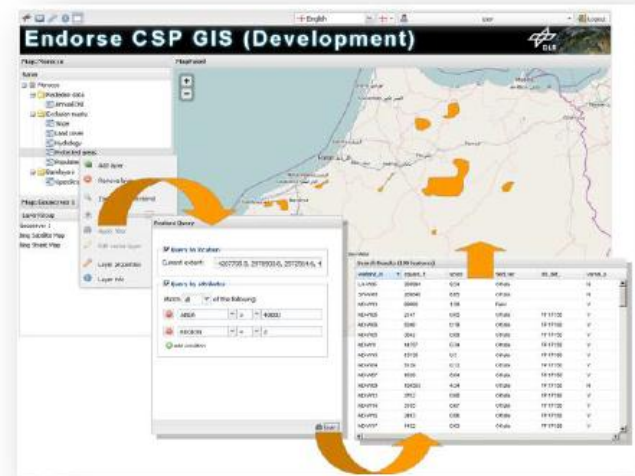


Hydrology



Irradiation DNI

Web-based
Geographical Information System
© DLR

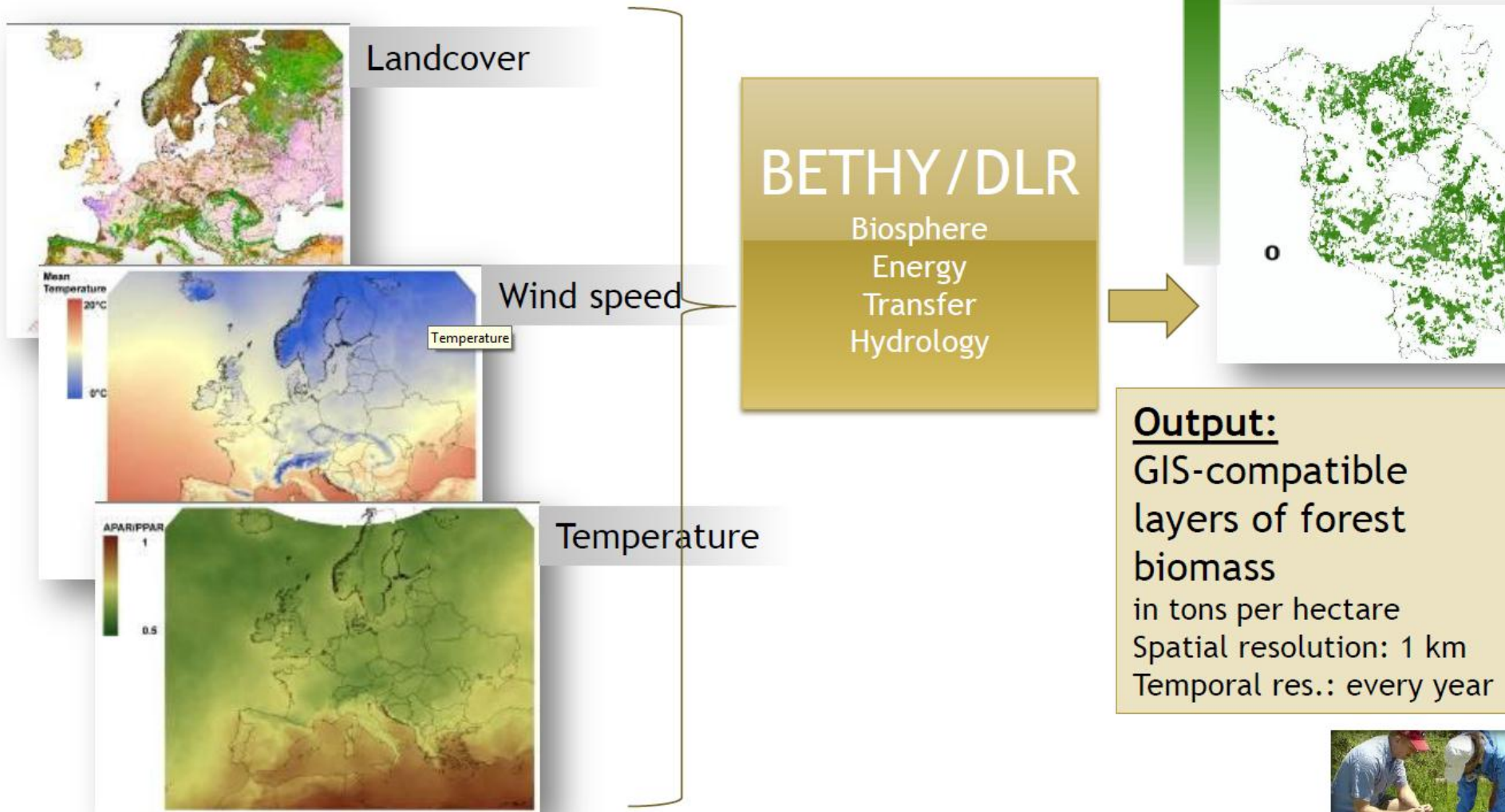


Maps of potentials
+ Exclusion maps

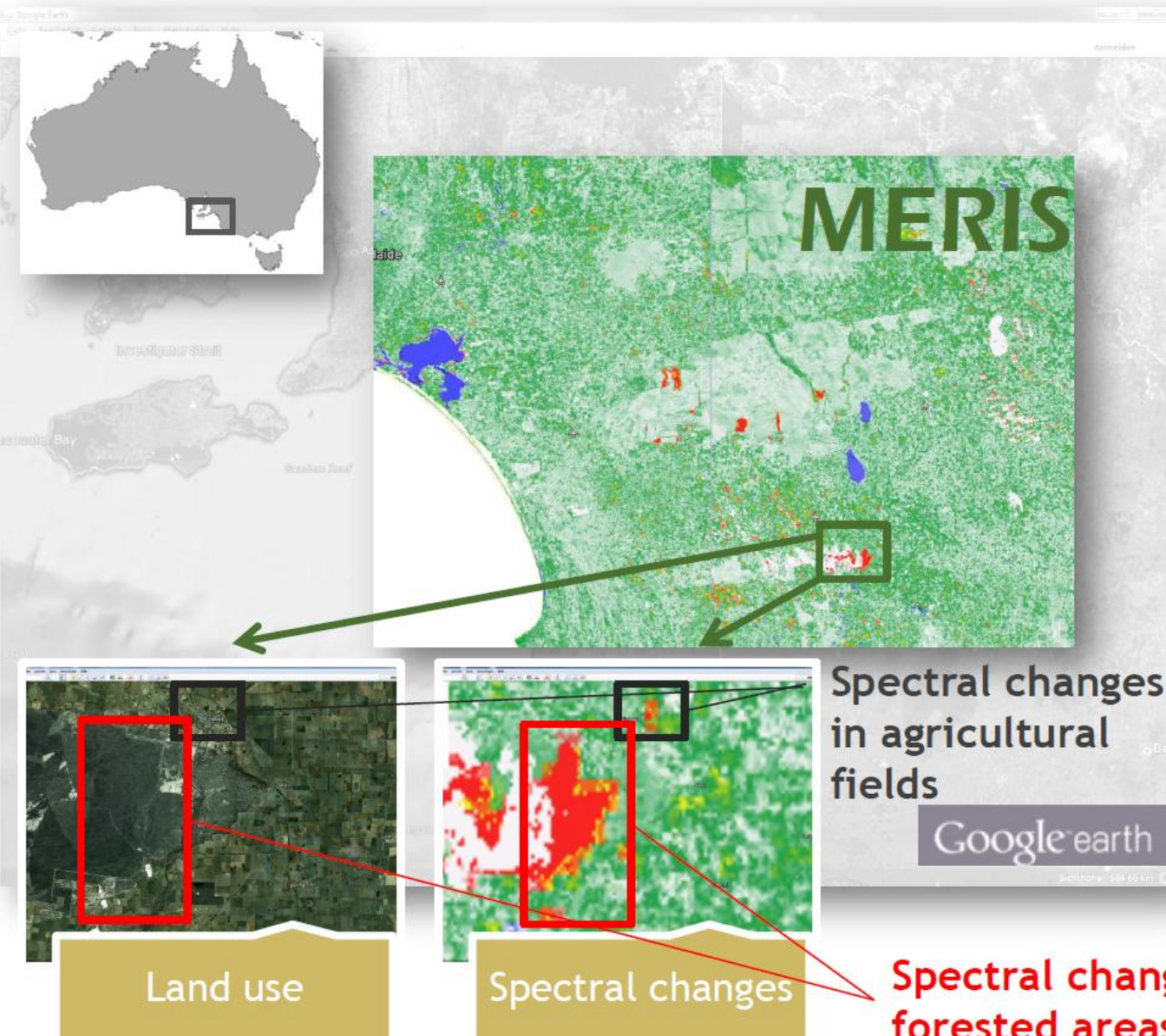
= Maps of opportunities

S8: « Mapping biomass potential »

Inputs: Pre-processing (quality check and harmonization) of the input data



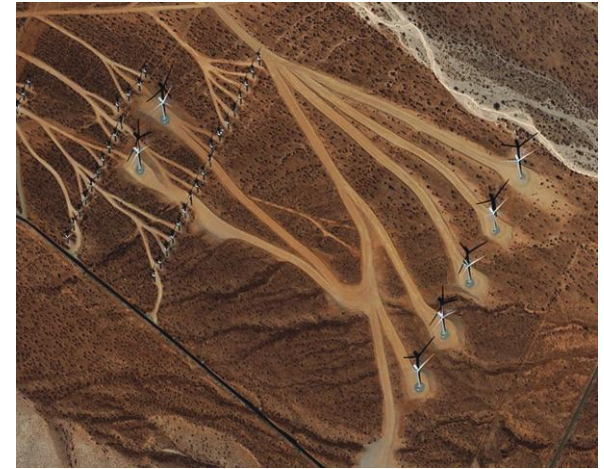
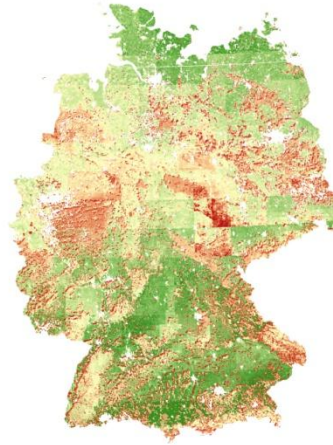
S9 : « certification of sustainable bioenergy use »



Purpose of the service:

Develop a cost-effective tool to detect and identify spectral changes in MERIS images to support certification of sustainable bioenergy use

Validation:
using Landsat ETM+ images



Earth observation for monitoring and assessment of the environmental impact of energy use

Version 03

Project overview



Seventh Framework Programme

Theme 6 - Environment

FP7-ENV-2008-1

GA No. 216364

- 12 partners from 6 countries
- Project duration: 11/2009 – 10/2013
- EC contribution: € 6 010 930
- Coordinator: Dr. Menno Dillen, TNO
- Website: <http://www.energeo-project.eu>

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Objectives
Project logic
Context to GEO
Environmental
Impact Model
Pilots
EnerGEO portal
PIA
Results and
Output

Project objectives

EnerGEO develops a strategy for a **global assessment** of current and future **impacts of the exploitation of energy resources on the environment and ecosystems** based on the use of the *Global Earth Observation System of Systems (GEOSS)* capacities. This strategy is demonstrated for a variety of energy resources worldwide (fossil fuels, biomass, solar and wind energy).

EnerGEO combines:

1. **Existing energy system models** and models capable of assessing and forecasting environmental impacts and costs of energy exploitation
2. **Existing global earth observation datasets** from which environmental indicators are derived in order to quantify changes to freshwater systems, biosphere, ecosystems, atmosphere and oceans

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Project objectives

4 Pilots were selected for testing and demonstrating the observation system and developed scenarios:

Fossil fuels: impact on atmospheric composition and land degradation

Biomass: impact on ecosystems, biodiversity and food security

Solar energy: select optimum power plant locations and support electricity grid integration

Wind: assess the potential (net) energy, assess environmental impacts of the substitution of fossil energy by wind power

→ all pilot outputs will be converted into **Environmental Impact Assessments** and tentatively **integrated through the Platform Integrated Assessment (PIA)**

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GEO Context

EnerGEO represents a major contribution of the European Commission to **GEOSS**, in particular to the Societal Benefit Area (SBA) **Energy** and the **GEO-tasks**

- **EN-07-02** (Energy Environmental Impact Monitoring) and
 - **EN-07-03** (Energy Policy Planning)
- (or any GEO Workpackage derived from these).

By developing a distributed system based on the recommendations of the **GEO-Architecture and Data Committee (ADC)**, global collection and dissemination of data relating to the impact of energy use on the environment will be supported.



-The SBAs of GEOSS

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Fossil Fuels – Energy Transition

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Large scale energy transitions have a significant impact on air quality.

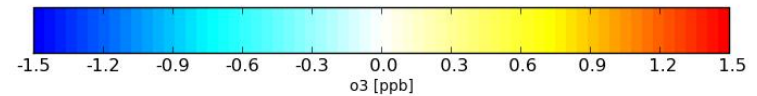
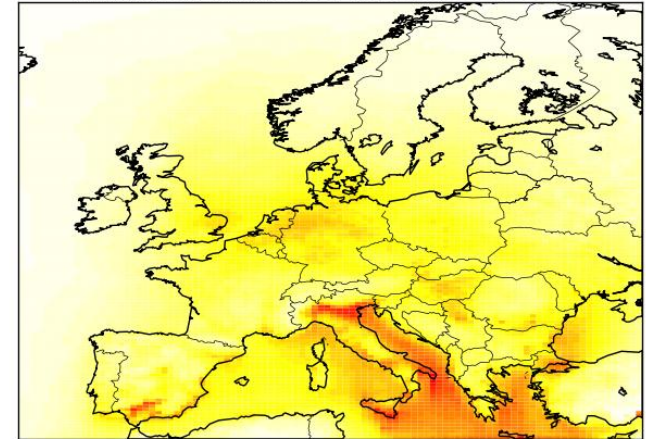
Generally air quality will benefit from less emissions, but there are some issues:

- Large-scale reductions of emissions will change the chemical regime in the atmosphere
- Large-scale use of biomass will be accompanied by large scale biomass production and potentially additional air pollutant emissions
- Because solar and wind energy revenue is dependent on meteorology, the timing of emissions from the back-up fossil fuel combustion will change as well. This may significantly alter the regional distribution of the impact of fossil fuel use.

-**Model used:** air quality model LOTOS-EUROS

-**Study areas:** Europe

new landuse-current landuse [2006-04-01 00:00,2006-10-01 00:00]

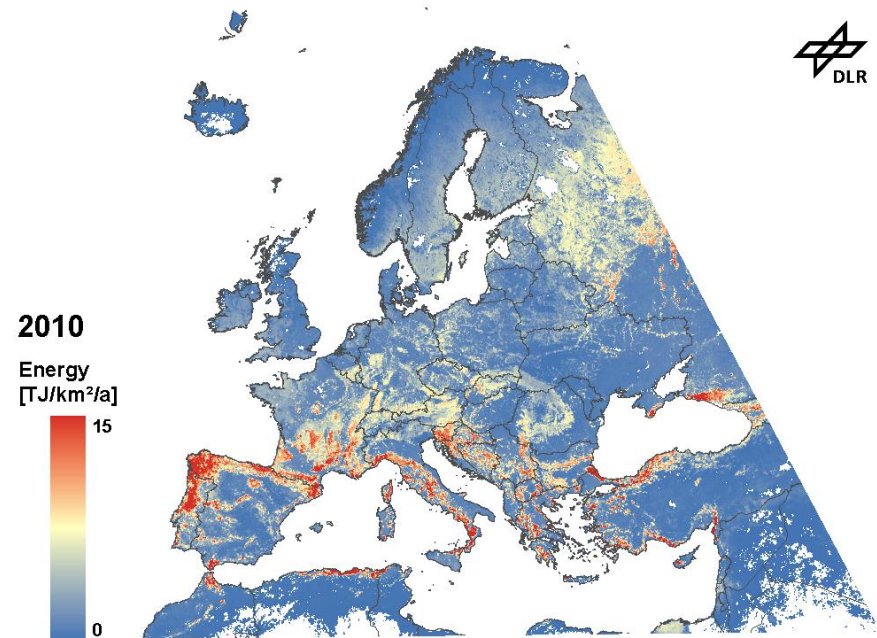


-Example: increase in summer surface ozone when 5% of the European agricultural land is converted into poplar for biomass production

Biomass - Energy potentials

The BETHY/DLR model is driven by **remote sensing data** (time series of Leaf Area Index and land cover classification) and **meteorological data**. The output is annual **Net Primary Productivity (NPP)** which is transferred to theoretical **energy potentials** using conversion factors.

-Sustainable management and food security are prerequisites for deriving theoretical energy potentials from NPP



-Theoretical energy potential for 2010 as computed with BETHY/DLR, including forest, agriculture and grassland.

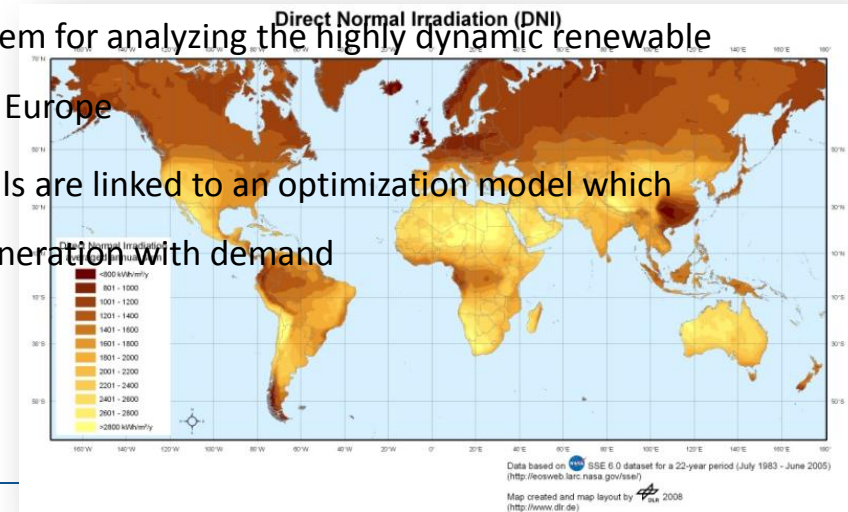
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Solar energy

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- **TASES (Time And Space resolved Energy Simulation)**
 - performs geographic explicit energy scenario analysis on a global scale for discrete points in time
 - modelling and optimisation tool for future energy systems
 - estimates potentials, costs and environmental impacts
 - models base-and peak load of solar power on different spatial scales
- **REMix (Renewable Energy Mix for Sustainable Electricity Supply in Europe)**
 - uses a geographic information system for analyzing the highly dynamic renewable electricity generation potentials in Europe
 - electric power generation potentials are linked to an optimization model which balances renewable electricity generation with demand
 - calculates the least cost electric power supply option at given constraints such as renewable energy share and import

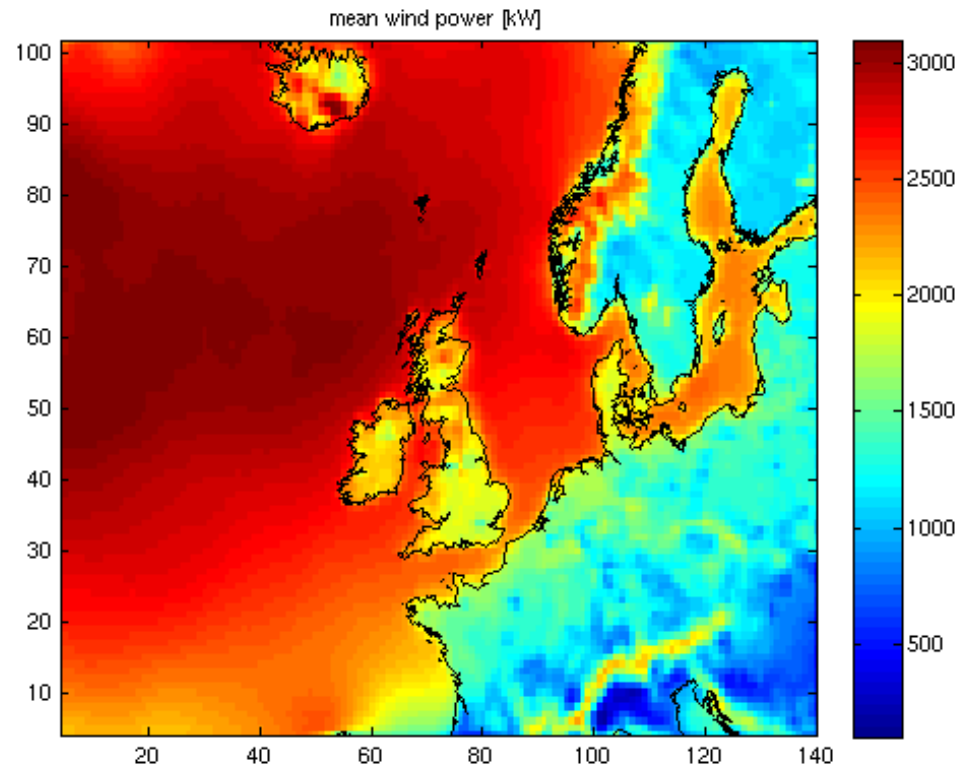


Solar Energy Resource
Assessment

Wind - Potential wind energy

High-resolution meteorological models are used to analyse potential energy yields. These models are calibrated and validated using in-situ and satellite measurements. Studied aspects are:

- Wind energy potential in Europe;
- Model accuracy;
- Energy production predictability;
- Energy production intermittency
- MetOcean statistics for turbine maintenance



Results and Outputs

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- **Linking Energy Use and Environmental Impact** by making use of state of the art environmental, energy and scenario models
- **Collecting the necessary datasets** and deriving **indicators** from them by connecting to current GEO-contributions and state-of-the-art in-situ global networks
- Enabling the collection of and access to EnerGEO-data by building a **portal** within the context of GEO and based on GEO-ADC-recommendations
- Testing the EnerGEO approach through dedicated **pilots** making our approach viable and supportive
- **Proposing perspectives from Pilot-scale to Global Scale** enabling to run global scenarios on energy use and environmental impact

Bio Energy Atlas

Knowledge for Tomorrow



Bio Energy Atlas Project

Markus TUM, DRL-DFD

- GMES Project
 - Proposed
 - Energy Mix (solar – bio – wind – fossile)
 - Development tool for decision makers

- Countries:
 - Kenya
 - Uganda
 - Egypt
 - South Africa

- RCMRD Service Host

- March 2013: Summer School
 - in Uganda
 - Financed by ENERGEO Project



WASCAL



Knowledge for Tomorrow





West African Science Service Center on Climate Change and Adapted Land Use

FUNDED BY:
 Bundesministerium
für Bildung
und Forschung



Competence Center

- data reception, maintenance & access
- research & provision of science-based advice to stakeholders

Core Research Program

- joint West African – German research
- interdisciplinary research on climate change and adapted land use

Graduate Research Program

- 10 Graduate Schools at West African universities in collaboration with German universities, training of PhD students

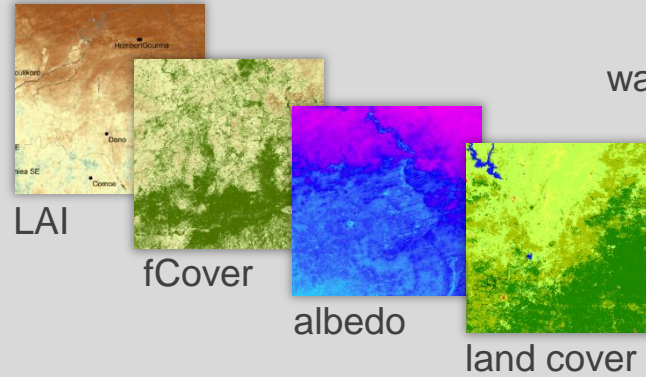


WASCAL - Activities at DLR

Satellite Receiving Infrastructure Competence Center, Ouagadougou



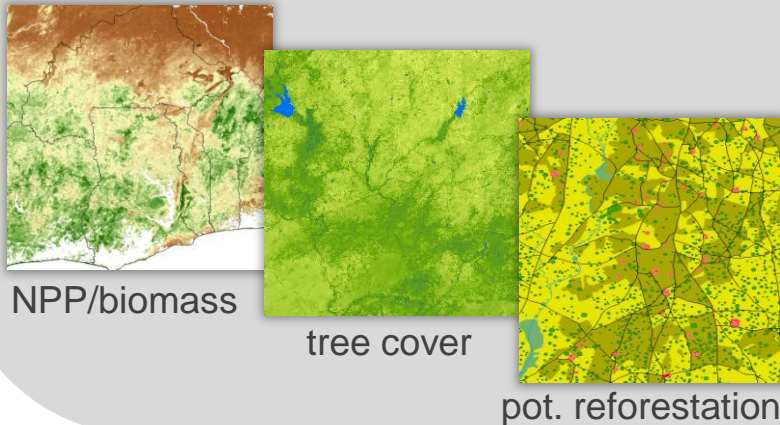
Interactions Land-Atmosphere Terrestrial Essential Climate Variables



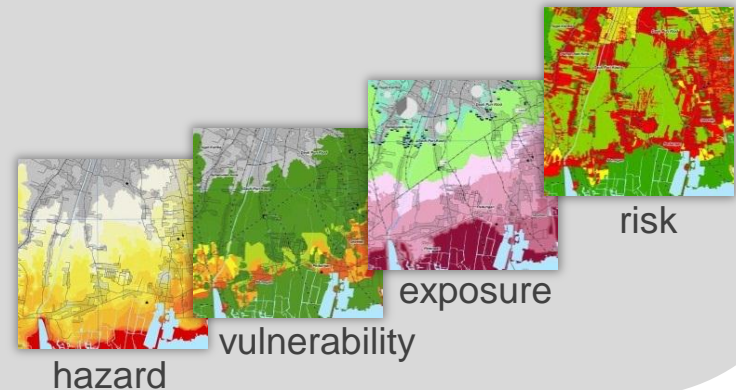
partner:
UNA
Universität
Augsburg
University

partner:
Center for
Development Research,
(ZEF) Bonn

Income from Carbon Markets



Risk Assessment for Floods and Droughts



partner:
UNITED NATIONS
UNIVERSITY
UNU-EHS
Institute for Environment
and Human Security

www.wascal.org



SASSCAL



Knowledge for Tomorrow



SASSCAL

(Southern Africa Science Service Centre for Climate Change and Adaptive Land-use)

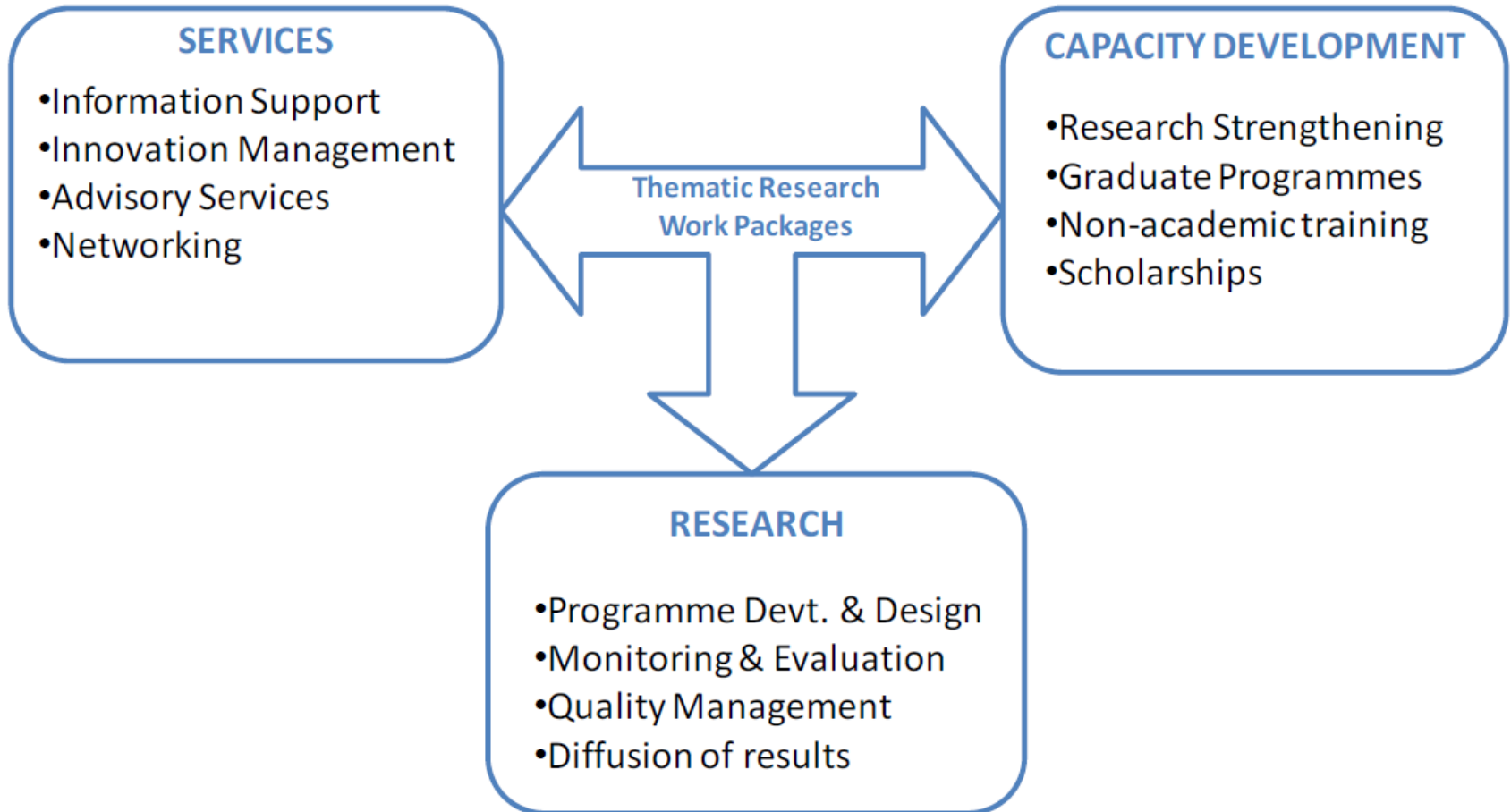
Vision*: SASSCAL is the REGIONAL driver for innovation and knowledge exchange to enhance adaptive land use and sustainable economic development in Southern Africa under global change conditions

Mission*:

- To establish a network of science service centres in the southern African region, thereby strengthening the regional scientific capacity and existing initiatives,
- to support adaptation by the participating countries to cope with climate change and land use change and the resulting impact on ecosystem functions and services, and
- to generate and provide scientifically sound, relevant and timely information for policy and development planning processes that will promote the improved livelihoods of the broader society.

* Based on the actual version of the SASSCAL business plan, not yet finally approved

SASSCAL – Product portfolio overview



SASSCAL – DLR contribution

(Bewilligungszeitraum 01.11.2012 – 31.10.2016)

Topic: Remote Sensing applications for flood risk management

Development of applicable and transferable methods for flood detection and monitoring and regular low-resolution flood mapping, in order to implement an exemplarily flood mapping service for a specific test area. Furthermore a risk assessment concept is worked out and tested in one area to support flood management. Gained mapping products serve as crucial input parameter for local and regional flood risk management, flood forecasting and early warning.



Deutsches Zentrum
DLR für Luft- und Raumfahrt

Bilateral Research Workshop between South African National Space Agency (SANSA) and German Aerospace Center (DLR)

Oberpfaffenhofen, 12/13 July 2012

Final Programme

¶

SANSA Participants ¶

Mr. Sandile Malinga — Chief Executive Officer (CEO) ¶

Ms. Bulelwa Melissa Pono — Chief Financial Officer (CFO) ¶

Mr. Raoul Christopher Hodges — Managing Director Space Operations ¶

Ms. Jane Mukarugwiza Olwoch — Managing Director Earth Observation ¶

Ms. Lee-Anne McKinnell — Managing Director Space Science **(Thu, 12/07 only!)** ¶

Mr. Eugene Avenant — Manager Space Operations ¶

Mr. Paidamwoyo Mhangara — Manager EO, Research Development and Applications ¶

Ms. Nichola Maria Knox — Earth Observation, Research Development and Applications ¶

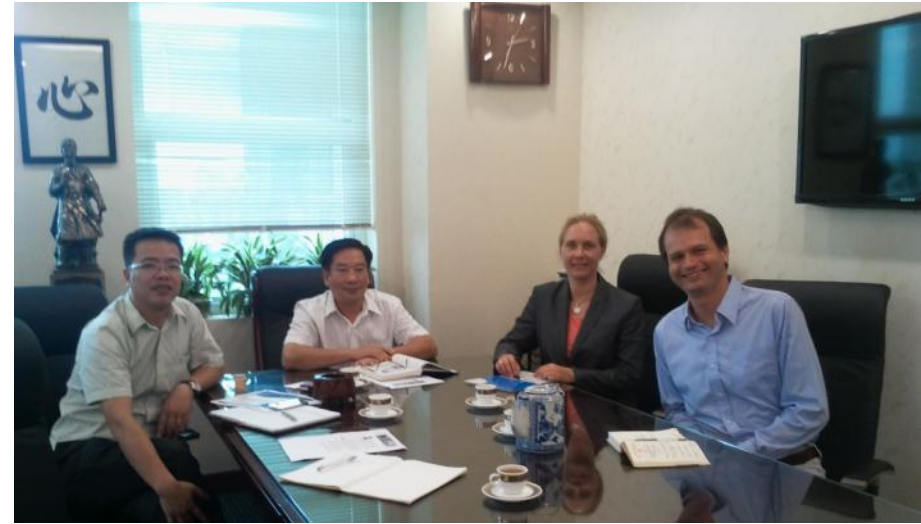


WISDOM : Water related Information System for Sustainable Development of the Mekong Delta

Capacity Building Activities

Dr. Claudia Künzer

-as local stakeholders and student groups in the Mekong Delta
- In last 6 years about 100 trainings workshops on topics such as GIS, remote sensing, Geo-IT, Knowledge Management, Laboratory analyses, field surveying etc. have been conducted



Right: with the Ministers of Environment and Agriculture

- **Mekong Delta Workshops / December 2011, April , July and September 2012**
- ➔ so far 180 persons in the Mekong Delta participated in the Capacity Building Measures
- Performance improved within the last workshops, lessons have been learned
- Strong consent amongst all participants that an information system such as the WISDOM IS is needed for daily operations



Nat Hazards
DOI 10.1007/s11069-011-9753-4

ORIGINAL PAPER

Resilience and organisational institutionalism from a cross-cultural perspective: an exploration based on urban climate change adaptation in Vietnam

Matthias Garschagen

Received: 2 November 2010 / Accepted: 13 February 2011
© Springer Science+Business Media B.V. 2011

Abstract Resilience theory has gained considerable prominence with regard to the management of social-ecological systems and more recently climate change adaptation. Yet, how resilience is precisely understood, how its institutionalisation works and how organisations can operationalise principles for achieving resilience often remains vague. Therefore, the paper explores how institutional and organisational theory can enhance the understanding of resilience. Linking institutional theory to resilience theory, the paper analyses in particular how organisational action, and which formal urban climate change adaptation distinctive institutional features in a given context. It is argued that such context-specific understanding, thereby, hampering implementation of resilience proposals and normative dimensions for recommendations are developed for thinking into organisational practices.

Nat Hazards
DOI 10.1007/s11069-011-9906-8

ORIGINAL PAPER

First- and second-order adaptation and extreme events in the context of climate change adaptation in Vietnam

Jörn Birkmann

Keywords Resilience · Neo-institutionalism · Urban development · Vietnam

1 Introduction

Advances in Global Change Research 45

Mart A. Stewart
Peter A. Coxland

Environmental Change and Agricultural Sustainability in the Mekong Basin

First Sheet 1 Explaining Knowledge Transfer: Water Supply Industry in Can Tho City by Qui Nam-Hoang

Second Sheet 2 Knowledge Class Building in the South of Vietnam by Terenzo Sacchi

Success stories on urban water services also exist in Vietnam. In 2008, the Hanoi Water Supply and Sewerage Authority (HWSA) for a 1.6-million serving water supply, as mentioned in the context. They are successful for the growth and for income as well as for the training of the operators of new services. An... (text continues)

... (text continues)

... (text continues)

FONA
Forschungs- und Innovationsmanagement
EHSF

RM

Wasserressourcen-Management: Forschung zur Umsetzung

... (text continues)

... (text continues)

... (text continues)

Local Sustainability 1

Konrad Otto-Zimmermann
Editor

Resilient Cities

Cities and Adaptation to Climate Change
Proceedings of the Global Forum 2010

... (text continues)

... (text continues)

... (text continues)

Nguyễn Thị Phương Loan

KHUNG PHÁP LÝ VỀ TÀI NGUYÊN NƯỚC Ở VIỆT NAM

... (text continues)

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Mekong Environmental Symposium 2013 - Convera Express - Microsoft Internet Explorer bereitgestellt von T-Systems SfR

http://www.mekong-environmental-symposium-2013.org/frontend/index.php

Google

Konvertieren Auswählen

Favoriten Ecological Indicators - Els... Ecological Economics - El... DLR Intranet DLR Portal DLR Webpostkorb Web Slice-Katalog Die Webseite kann nicht a...

Mekong Environmental Symposium 2013 - Conv...

Seite Sicherheit Extras



BMBF · DLR

14 November 2012 | 17:30 in Ho Chi Minh City

» Login

» Welcome

» Symposium Topics

» Abstract Submission

» Symposium Registration

» Important Dates

» Exhibitors

» Symposium Programme

» Symposium Committee

» Symposium Venue

» Hotels and Travel

Dear Colleagues,

it is our great honor to invite you to attend the Mekong Environmental Symposium 2013 in Ho Chi Minh City, Vietnam, from March 5th - 7th, 2013. The Mekong Environmental Symposium 2013 is the first event organized by the German Aerospace Center, DLR and the WISDOM Project, and it will serve as an international platform for governmental decision-makers, scientists, and other organizations active in the Mekong context. We are looking for contributions from all six Mekong riparian countries - China, Laos, Myanmar, Thailand, Cambodia, and Vietnam - as well as from the international expert community.

Translators for all six languages of the Mekong Riparian Countries will be provided throughout the conference. The event therefore will offer significant opportunities to meet colleagues who share the same interests and want to contribute to further trans-disciplinary information exchange for the benefit of the river basin. Whether it is in the field of river ecology, environmental monitoring, hydrology, socio-economics, energy, disaster management, or trade, to name just a few: we cordially invite you all to contribute to the numerous sessions planned for this three-day event. We expect to welcome about 300-350 participants to the event.

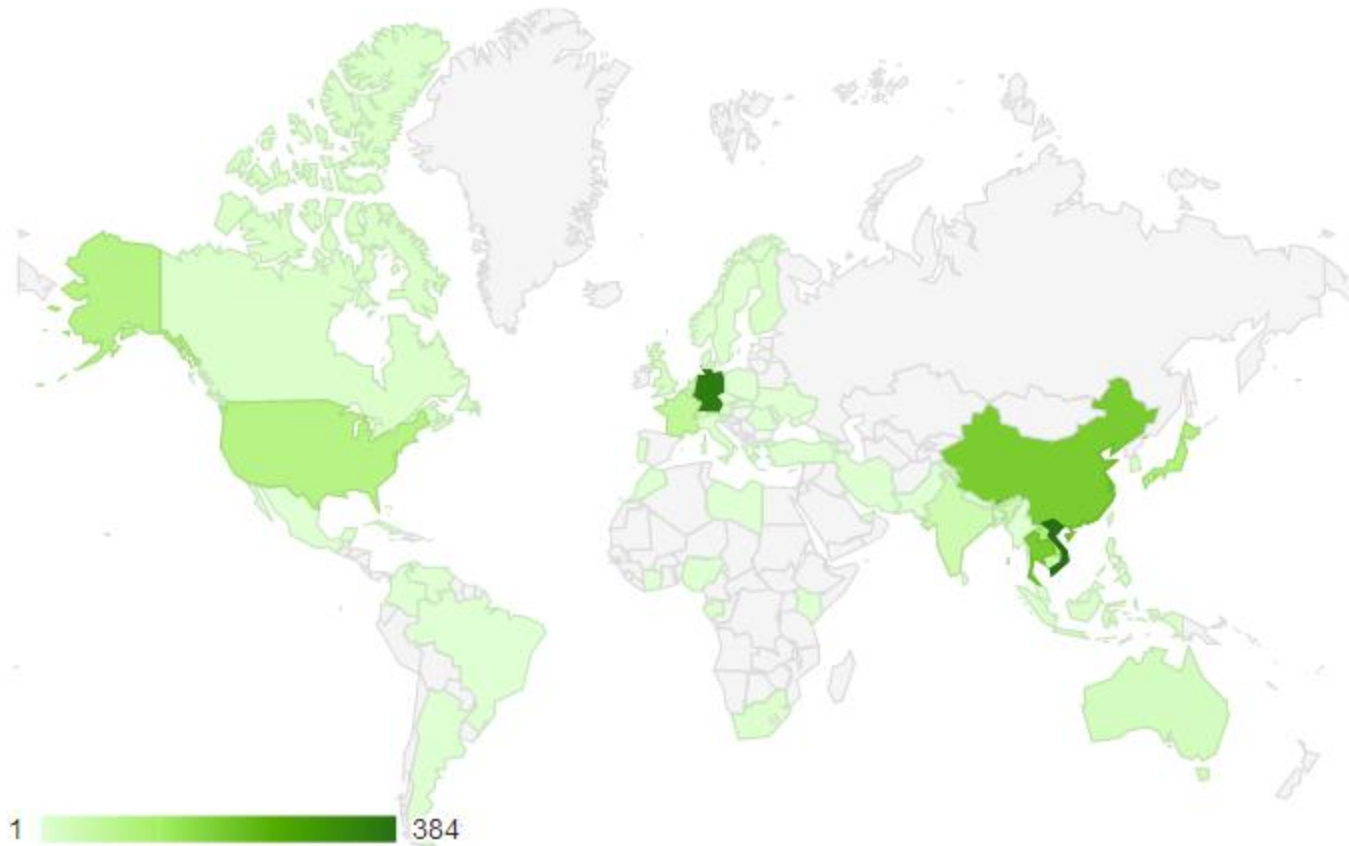


Claudia Kuenzer



Florian Moder

The Symposium will have 400 Participants from 20 countries; each day over 1500 Visits at the Website



Visits

1,854

% of Total: 100.00% (1,854)

Pages / Visit

5.19

Site Avg: 5.19 (0.00%)

Avg. Visit Duration

00:06:28

Site Avg: 00:06:28 (0.00%)

www.wisdom.eoc.dlr.de

<http://www.dlr.de/eoc/>

<http://www.wisdom.eoc.dlr.de/en/content/wisdom-water-information-system-mekong>

<http://www.youtube.com/watch?v=Bvd3TOd1LGw>

Outline

1. DLR – Agency Profile 2013

2. DEM Data: SRTM & TanDEM

- Sensor & Missions
 - Data
- a. SRTM X-SAR
 - b. TanDEM-X (90 m/30 m/12 m)

3. Applications, Data Products & Services

- Software
 - Models
 - Applications
 - Data Products
 - Services
- c. NPP/BETHY
 - d. ENERGO
 - e. ENDORSE
 - f. Bio Energy Atlas
 - g. WASCAL/SASSCAL
 - h. WISDOM

4. Education Programs Synergies

- i. DLR – ESA (#11)



Summary & Outlook

- ❖ DLR provides free access to **SRTM X-Band DEM data** @30m resolution. **Global TanDEM-X** data will be available @90m resolution in 2014 and, restricted in area and for non-commercial applications, also @30m and @12m resolution.
- ❖ DLR is active in several international **capacity building projects** in Africa and Asia, aiming to provide high level data products and services for the development and implementation of the corresponding knowledge, access to EO information & image-processing software, dissemination models, and capacity building and training programmes.
- ❖ All these activities will be **continued and/or enhanced in the future**.
- ❖ Furthermore, DLR has developed new **education concepts** in order to attract secondary school students to aerospace S&T – a typical example is the DLR_School_Lab Oberpfaffenhofen. In close cooperation with ESA, this concept has been further developed to a **practical EO education and training facility** which could be useful especially for developing countries.

