Progress in the Agriculture Societal Benefit Area

Bradley Reed, POC

USGS

Agriculture Societal Benefit Area

- Primarily a user-driven (bottom-up) SBA
  - The seven GEO AG tasks were examined to identify areas of potential CEOS contributions
    - Task leads were contacted and discussions about possible coordination were held
    - Nine CEOS-GEO actions were identified at the 20-22 February CEOS-GEO Task Workshop in Silver Spring, MD, USA and later expanded to twelve actions

Agriculture Societal Benefit Area

- There is significant overlap with LSI constellations activities
  - The primary concern of most of the task groups is continuity of mid-resolution observations
    - For example, for Task AG-06-04 LSI will compile mid-resolution data sets over selected regions to accommodate both forestry and agricultural research

Agriculture Societal Benefit Area

- Some of the Tasks solicit CEOS support to maintain funding for research projects with no clear milestones and deliverables
  - Continue research on biomass estimation
  - Continue support of early warning projects

Agriculture Societal Benefit Area

- Maintaining CEOS communication with Task groups is essential so that the users understand that the space agencies support the GEOSS goals
  - Participation in Task group meetings
  - email communication with Task POCs

Agriculture Societal Benefit Area

- Maintaining CEOS communication with Task groups is essential so that the users understand that the space agencies support the GEOSS goals
  - Participation in Task group meetings
  - Ongoing email communication with Task POCs

Climate SBA CEOS-GEO Actions

Mitchell D. Goldberg
NOAA/NESDIS

Progress of Category 1

- Motivation -- Identify key climate activities contributing to GEO Work Plan and societal benefits and to promote international awareness, collaboration and opportunities.

CEOS contribution to GEO Work Plan for Climate

- CL-06-01: Sustained Reprocessing and Reanalysis Efforts
  - This Task is led by GCOS and CEOS.
    - Ensure the development of international mechanisms to coordinate and maintain sustained climate data reprocessing and reanalysis efforts. With regard to the reprocessing of historical datasets (to obtain consistent long-time series of satellite records), make relevant synergies with Task CL-06-02
- CL-06-02: Key Climate Data from Satellite Systems
  - This Task is led by USA, CEOS, GCOS and WMO.
    - Establish actions securing the provision of key data for climate studies and forecasting from satellite systems.

- Four year extension to the total ozone and profile CDRs for SBUV by reprocessing NOAA-16 and NOAA-17 SBUV/2 records through 2007
  - (NOAA) COMPLETED: Periodic
- Extend long-term times series of AVHRR (clouds, aerosols, surface temperature, vegetation index) and SSM/I)total precipitable water and rainrate to June 2008
  - (NOAA) COMPLETED , Annual
- Reprocessed altimetry (Radar Altimetry 2) and atmospheric chemistry products (Schiamachy, GOMOS and MIPAS) from ENVISAT
  - (ESA) Schiamachy COMPLETED, others ongoing
- Reanalyzed global sea ice data (1987- 2007)
  - (EUMETSAT) SSM/I - ON TRACK
- Develop radiative transfer model for the historical Stratospheric Sounding Unit (SSU) needed for reanalysis
  - (NOAA) COMPLETED
- Reprocess Schiamachy products
  - (DLR) COMPLETED. periodic

CEOS contribution to GEO Work Plan for Climate

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- CL-06-02: Key Climate Data from Satellite Systems
  - This Task is led by USA, CEOS, GCOS and WMO.
    - Establish actions securing the provision of key data for climate studies and forecasting from satellite systems.

- Measurement consistency for 1-5km sensors:
  - Phase 1 MODIS, ATSR and AVHRR
  - Phase 2 Generate FCDR from 1 KM AVHRR
  - (NOAA/WGCV) Workshop COMPLETED; ongoing
- Conversion of TRMM products into GIS format
  - (NASA) COMPLETED
- Proceed with planning in US and Europe for wide-swath altimetry demo mission
  - (NASA) Assessment workshops and funded risk reduction studies. ONGOING
- NOAA operational greenhouse gases from IASI
  - (NOAA) COMPLETED
- SIT discussion with NPOESS program scientist to mitigate CrIS degrade CO products
  - (NOAA) On track – briefing material completed
- Report on Phase 0 studies on potential future climate sensors (Post IASI, SWOT, 3MI)
  - (CNES) On track.
- Report on current and future JAXA space-based climate observation missions.
  - (JAXA) Good progress - On track. GCOM-W1 in Phase-C

CEOS contribution to GEO Work Plan for Climate

- CL-06-01: Sustained Reprocessing and Reanalysis Efforts
  - This Task is led by GCOS and CEOS.
    - Ensure the development of international mechanisms to coordinate and maintain sustained climate data reprocessing and reanalysis efforts. With regard to the reprocessing of historical datasets (to obtain consistent long-time series of satellite records), make relevant synergies with Task CL-06-02
- CL-06-02: Key Climate Data from Satellite Systems
  - This Task is led by USA, CEOS, GCOS and WMO.
    - Establish actions securing the provision of key data for climate studies and forecasting from satellite systems.

- Operational implementation of geostationary to LEO intercalibration for all operational IR imagers
  - (NOAA/GSICS) Completed at NESDIS and JMA, EUMETSAT by end of year, CMA end of next year.
- Conversion of TRMM products into GIS format
  - (NASA) COMPLETED
- Global datasets and accessibility for GlobColour, GlobGlacier, and Medspiration (Europe contribution to GODAE (SST)
  - (ESA) COMPLETED - Available at ESA websites
- Status report on June 2008 Jason-2 launch
  - (NASA,CNES,NOAA) COMPLETED
- ACC Climate Workshop
  - (NASA) On track – workshop at GISS (NY) in October 08, final report in November
- CEOS IDN Portal to include Climate Diagnostics showing long term trends and variability information for societal benefits
  - (NASA) COMPLETED
- Characterize historical HIRS instrument spectral response effects on HIRS intersatellite bias using IASI and AIRS
  - (NOAA) COMPLETE: Methodology demonstrated and presented at SPIE conference and journal article prepared; Need to continue effort

File Edit View History Bookmarks Tools Help

http://sandbox-qa1.gsfc.nasa.gov/KeywordSearch/Titles.do?Portal=climatediagnostics&KeywordPath=Parameters|CRYOSPHEI

Most Visited Getting Started Latest Headlines

Beta

CEOS Climate Diagnostic Portal

Home Add a Visualization

Refine by Full-text

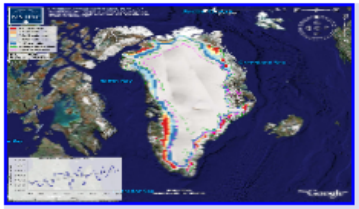
Go

Refine by Category

Refine options

Viewing 1 through 4 of 5 titles that match your query

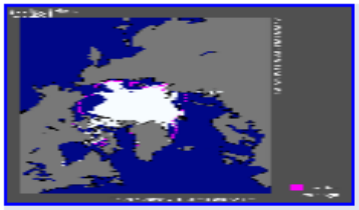
View next page



Greenland Ice Sheet Melt Characteristics Derived from Passive Microwave Data

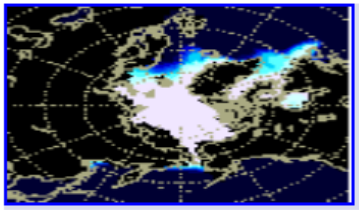
The Greenland ice sheet melt extent data, acquired as part of NASA's Program for Arctic Regional Climate Assessment (PARCA) program, is a daily (or every ...

Viewing Specifications: Visualization requires Google Earth to be displayed



Northern Hemisphere EASE-Grid Weekly Snow Cover and Sea Ice Extent 1966 to 2007 Version 3 Animation

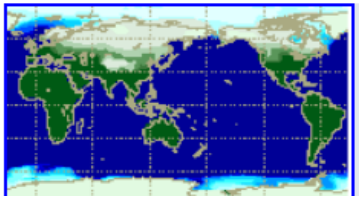
The Northern Hemisphere EASE-Grid Weekly Snow Cover and Sea Ice Extent Version 3 product and Version 3.1 update combine snow cover and sea ice extent at weekly intervals from ...



Simulation of Global Warming with the MRI Coupled Model - Sea Ice

A Coupled Atmosphere-Ocean General Circulation Model has been developed for simulation of climate change. Global Warming is simulated by the model with a gradual increase ...

Viewing Specifications: Requires QuickTime to play



Simulation of Global Warming with the MRI Coupled Model - Snow and Sea Ice

A Coupled Atmosphere-Ocean General Circulation Model has been developed for simulation of climate change. Global Warming is simulated by the model with a gradual increase ...

Viewing Specifications: Requires QuickTime to play

CEOS contribution to GEO Work Plan for Climate

- CL-06-05: GEOSS IPY Contribution
  - This Task is led by Portugal and WCRP.
    - Coordinate with the International Polar Year (IPY) to enhance the utilization of Earth observations inall appropriate realms (including, but not limited to, sea and land ice, permafrost, coastal erosion,physical and chemical polar ocean changes, marine and terrestrial ecosystem change, biodiversitymonitoring and impacts of increased resource exploitation and marine transport).
- CL-06-07: Seamless Weather and Climate Prediction System
  - This Task is led by WWRP-THORPEX and WCRP
    - Promote international collaboration on the development of high resolution seamless weather/climate global prediction system.

- Generate polar products in real-time at direct broadcast sites in Arctic and Antartica in support of IPY
  - (NOAA) COMPLETED
- Generate and make accessible to Antarctic mosaic dataset of ALOS PALSAR
  - (JAXA) On track

- Monthly reports on three month prediction of precipitation and temperature anomalies.
  - (CPTEC) Completed/Ongoing

Future Plans

- Provide summary report for Category 1 actions
- Category 2 – 4
- Identify further opportunities and collaboration for both CEOS-GEO Actions and CEOS-GCOS Actions

Disaster SBA Team

CEOS SIT-22 Report

Guy Séguin

Overview of 2008 Category 1 Actions

Task Number	Description	POC	Status
DI-06-03_1	InSAR integration	ESA	1st phase completed (Action Plan draft)
DI-06-08_1	Coordination with VC	CSA	Is being done. Closed
DI-06-09_1	Development of requirements and implementation plan	CSA	1st phase completed (user requirements validated, architecture requirements drafted)
DI-06-09_2	Improve access to Disaster Charter	ESA	On-going (GEO response and workplan awaited)
DI-06-09_3	Promote Demonstration	CSA	Promoted proposal for flood management in Caribbean in response to GEO AIP CFP
DI-06-13_1	Data for fire monitoring	NOAA	Request sent to CGMS. Closed.

Overview of 2008 Category 2-4 Actions

Task Number	Description	POC	Status
DI-06-04_1	Referenced products	CSA	No deliverable in 2008
DI-06-07_1	Zonation map	NOAA USGS	No deliverable in 2008
DI-06-08_2	Volcanic ash Alert	ESA	List of deliverable planned for September
DI-06-09_4	Access to CEOS members archive	NASA	Report of progress from NASA. Deliverable in 2009
DI-06-09_5	Charter Metadata Catalog	CNES	Workplan was developed. Deliverable in 2009

Note: It is proposed to continue DI-06-09 under the 2009-2011 GEO Workplan but to consolidate the others Tasks under DI-09 tasks. The CEOS actions plan will have to be reviewed

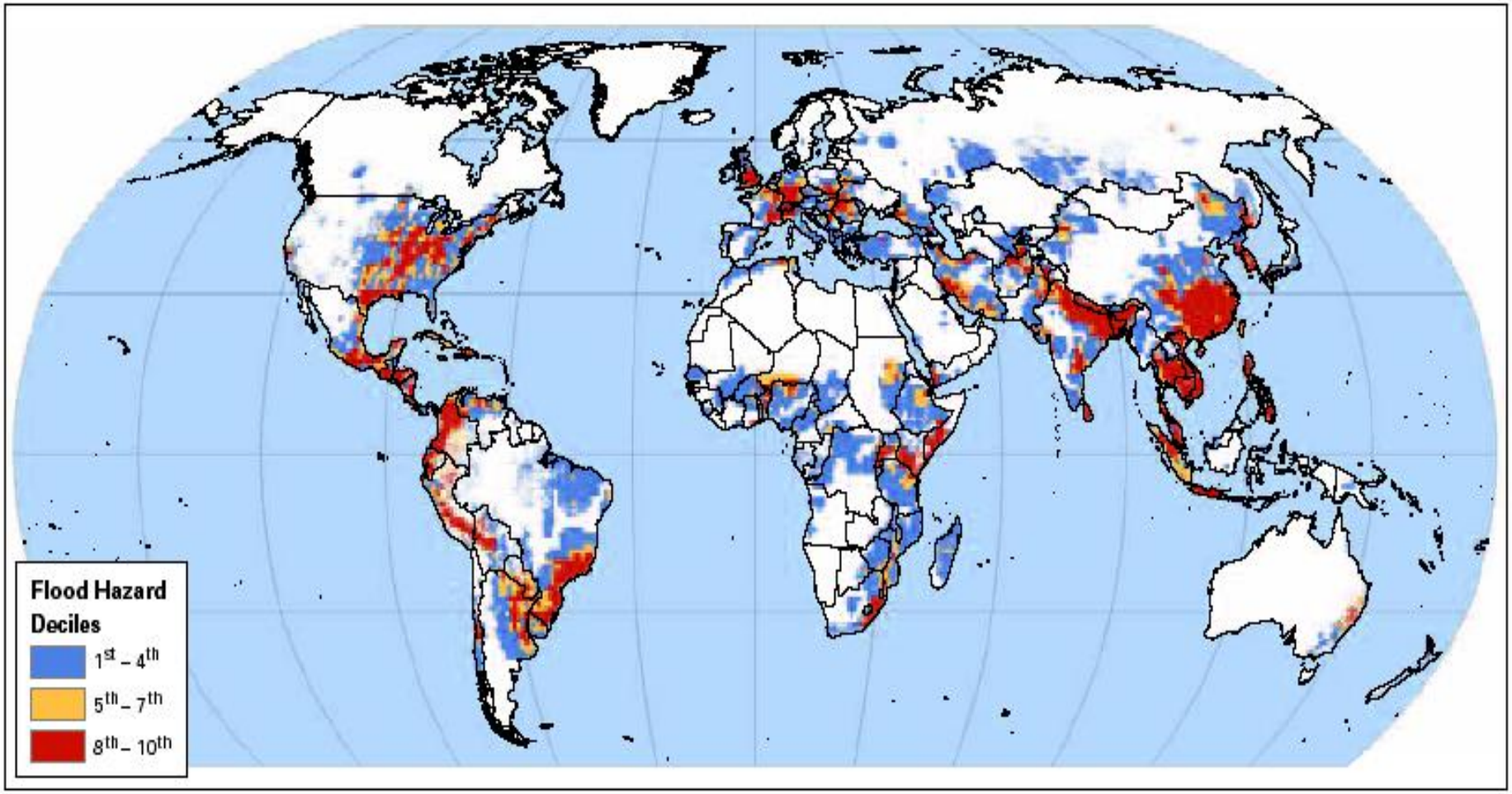
Main Progress – DI-06-03_1

- Description: InSAR Integration for geohazard monitoring
- Progress: 1st draft of Action Plan completed and will be further developed and validated this fall; calls for creation of monitoring "supersites" which will serve as testbeds for advanced data integration in support of geohazard monitoring
- Planned work 2009-11: creation of supersites, agreement for data collection, pilots for monitoring applications

Main Progress – DI-06-09_1

- Description: Use of satellites for risk management
- Reports such as produced by IGOS-P, CEOS and GMES were used as starting point.
- User requirements: (Flood, Earthquakes, Landslides, Volcanoes, Windstorms, Drought, Wildfires, Tsunami)
  - Identify region of interest (priority areas)
  - Identify target characteristics (what do we want to see?)
  - Identify temporal revisit period
  - Establish timeliness/latency requirements
  - Identify end use for data by intermediate user (application, service,
- A global users requirements was developed and validated by expert identified by UN-SPIDER. The report will be available by the end of September.
- Draft Architecture requirements were produced.
  - What type of satellite data? (SAR, optical, altimetry, etc)
  - Number of satellites and coverage mode?
  - Ground segment
  - Application
- Need to be validated
- Planned work for 2009-2011: Complete validation of Architecture requirements, simulate options to meet them and provide a gap analysis.

Floods



The World Bank – Natural Disaster Hotspots: A Global Risk Analysis

Floods. User Requirements

Phase Requirements	Mitigation	Warning	Response	Recovery
Target	Topography Hydrological models Historical atlas of floods Flood models/simulations New infrastructure, houses Land-use classification Monitoring of dikes and dams Tropical cyclone seasonal predictive models/simulations Monitoring sea surface temps Monitoring sea-level rise m	Precipitation Water level (rivers, lakes) Weather forecast Soil moisture Snow-water equivalent Signs of catastrophic infra failure Signs of active or high tropical cyclone activity Sea-level Signs of coastal erosion and inundation	Water level (rivers, lakes) Extent of flood Status of critical infrastructure Weather forecast Status of coastal infrastructure Predictive model simulations for rising sea level effects	Status of critical infrastructure Damage assessment Flooded areas
Revisit	Monthly (models during season) 1 to 3 years (imagery) 5 to 10 yrs (topography)	Daily or better during high risk period	Daily in early morning; twice daily if possible	Weekly (major floods) for several weeks to several months
Timeliness	Weeks Months (for seasonal predictions) Years (for Global Change)	Hours Days to Months (for tropical cyclone activity)	Hours (2-4 max)	1 day Years (for Global Change)
End use	Integration in land use planning/zoning Baseline for response Integration in coastal area planning/zoning (Global Change)	Decision support for warnings & evacuation Decision support for infrastructure building and population relocation	Situational awareness Resource allocation support Initial damage assessment Impact planning/action	Tracking affected assets Charting progress Assessing scope of Global Change impacts and ability to cope

Floods, Architecture Requirements

Phase Requirements	Mitigation	Warning	Response	Recovery
Data type	Low res DEM for flow rates (radar, stereo, laser) Higher res DEM (DTED-2 or better) for extent and location (radar, stereo, laser)_ Medium to high res (scale, other image sources, urban/rural) Optical or radar overlay (geo-coded, ortho-rect.) Archived imagery of previous floods Interferometric analysis of subsidence (and other changes)	Met sats Precipitation radar X, C or L-band SAR 10-50m data Passive microwave (for soil moisture) Hi res optical upstream for slow flood Altimeters Interferometric analysis of subsidence (and other changes)	Precipitation radar X, C or L-band SAR 10-50m data (extent of flood – large areas) ; higher res radar and optical for urban areas or flash floods (damage) Met Altimeters	Med to high res optical and radar Interferometric coherent change maps
Coverage and revisit	Continuity of existing optical and radar missions (need to develop background mission coverage in areas on flood map)	Daily coverage in regional areas affected	Pre-dawn or dawn required Daily early morning coverage in regional areas affected	Continuity of existing optical and radar missions
Potential data source	SRTM (background) SRTM DTED-2, Tandem-X DTED-3, Cosmo, etc....	GPM 3-4 radar satellites on same orbit; 2-3 satellites using same frequency in same orbits Optical: comparable?	3-6 radar satellites on same orbit Optical hi res (2 or more)	2 radar satellites using same frequency Optical hi res (1)
Ground segment (need for development)	Using existing ground segments	Fast download, fast tasking (northern/southern stations, geostationary com links)	Very fast download and tasking (northern/southern stations, geostationary com links)	Using existing ground segments
Application	Integration with risk map Land cover maps	Information used for bulletins and evacuation, warnings	Situational awareness products	Tracking affected assets

Main Progress – DI-06-09_2

- Description: Improve access to Disaster Charter data
- A presentation was made by the GEO PM and the task POC at the last meeting of the Board of the Charter in April.
- A letter was sent to José Achache by the Chair of the Board on May 22sd to inform him of the decision.
  - The Board unanimously endorsed the principle of "universal access" for all states.
  - And proposed that a select group of Charter representatives, led by Michael Rose from BNSC meet with a delegation of the secretary to discuss the modalities.
- A response is due from the GEO secretariat
- The proposed meeting could be held in parallel with the next meeting of the Board in October.

Main Progress – DI-06-09_5

- Description: International Charter metadata catalogue
  Publicise data acquisitions made by Charter
- Latest version was presented at the meeting of the Board and Executive Secretariat of the Charter in April 08
- New developments :
  - Extension to wide range of Charter sensors
  - Automated updating of catalogue (both metadata and charter activations)
  - New query interface
- Proposal to GEO AIP CFP – Sep 08
- Development at GISTDA ASIAES (discussed with CNES)
- New version will be presented to the Charter in Oct 08
- Will be continued under the 2009-11 actions plan

Next Steps

- Report on Users requirements: end of September
- Validation of Architectures requirements: December
- Finalize InSAR integration actions plan: December
- Modalities of Charter access: December
- Remap CEOS actions under 2009-2011 GEO WP: TBD
- Finalise the metadata catalog for June 2009

Overview of Proposed GEO 2009-11 Tasks

Task Number	Description	Notes	Deliverables	Issues
DI-06-09	Use of satellites for risk management	Continues effort from previous workplan	Software tools, validated constellation requirements, performance assessment, collaboration with Charter	Priorities within broad range of requirements
DI-09-01	Monitoring Geohazards	Includes DI-06-02, DI-06-03 and DI-06-07	Data supersites, seismic data portal	
DI-09-02	Multi-hazard risk and regional applications	Includes DI-06-08 and DI-07-01	Integrated risk management approach, pilots and decision tools	Overlap with DI-06-09?
DI-09-03	Warning systems	Includes DI-06-04 and DI-06-13	Tsunami pilot, fire warning system	

Ecosystems SBA Update

EC-06-01-1

Action: Installation of additional flux towers in areas covered by SAEON nodes thus expanding the CarboAfrica flux station network.

Status: Since 2007 where the total operational carbon flux monitoring network in Africa stood at 12 sites, 4 new additional sites have been added taking the total network to 16. The most recent addition was the Malopeni site in Phalaborwa, South Africa, which doubles as a SAEON node and adds important monitoring capability in the savannah ecosystem. In addition, a mobile station has been deployed in the Succulent Karroo region of SA which will provide the first data on Crassulacean acid metabolism (CAM) considered a vital potential carbon sink

EC-06-02-1

Action: Operationalise CBERS-2B reception at CSIR facility. Therafter develop image mosaics of Southern Africa.

Status: In August 2008, CRESDA visited the CSIR SAC ground receiving station to test CBERS-2B reception. Testing was successful with several images being directly received, and 1 specifically over Accra Ghana downlinked from the on board storage disc. This image will be sent to Eumetsat for demonstation of the geonetcast distribution model at the 7th AARSE conference in Accra, Ghana between 27 and 31 October. The ingest system being developed by CRESDA will be complete by October 2008 with full reception capability at CSIR SAC scheduled for November. The first mosaic over Malawi will be released demonstarted at Plenary in November

EC-07-01-1

Action: ESA to release GlobCover data.

Status: COMPLETED. GlobCover first Global Land Cover at 300 meters has beed processed with MERIS data from 2005-2006 and is available to public as from March 2008 at http://dup.esrin.esa.int/projects/summaryp68.asp

EC-06-07-1

Action: Contact Doug Muchoney from GEOSEC to identify an appropriate date and location to host a consultative workshop for further collaboration on Phenological Networks. Convene workshop to identify community interests, strategies and potential leads and contrib

Status: Jake Weltzin and Brad Reed from USGS communicated with Doug Muchoney regarding the possibility of GEO organizing a Global Phenology Network. To that end, they together with the University of Wisconsin-Milwaukee constructed a proposed new GEO Task Sheet (GEO Task EC-P08-03) that proposes a workshop on initiating a global phenology network and creating an implementation document.

EC-06-02-2

Action: Organize a workshop at CalTech to discuss greenhouse gases determination, identifiy key targets for routine subsetting, ground cal/val data availability, interagency data sharing and satellite data sets for cal/val.

Status: COMPLETED the workshop was held in mid-May 2008 in Pasadena, California. Final minutes are under preparation

Remaining Ecosystem tasks are ongoing

In the GEO Workplan 2009-2011, the monitoring of UNESCO world heritage sites shifted from Biodiversity to Ecosystems EC-09-01 : Ecosystem Observation and Monitoring Network (GEO EcoNet) / Protected Areas Assessment and Monitoring (GEO PAAM) (USA+UNEP+UNESCO)

Energy SBA Status Report

Richard Eckman
NASA

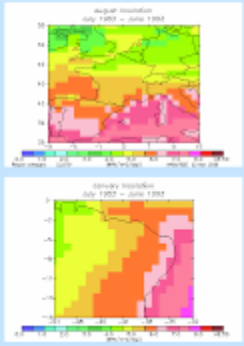
2008 Progress Summary

- Close collaboration with GEO Energy Community of Practice: GEOSS energy compound data service demonstration (ESA, DLR, NASA, École des Mines)
- SEO energy observations gap analysis
- Assessment of utility of NASA OCO CO_2 measurements to energy & carbon management
- UNEP Solar and Wind Energy Resource Assessment (USGS, NASA, NREL)
- Space-weather impacts on power grid (NASA, EPRI)
- International Energy Agency Task 36 (DLR, NASA, others)

GEOSS: First Energy Demonstration

SSE Data Set

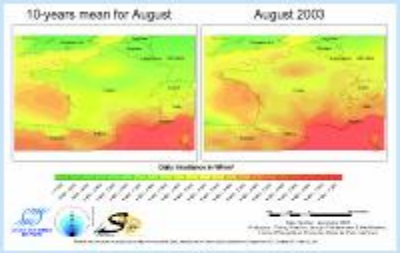
Access through:
http://eosweb.larc.nasa.gov/sse/



- Monthly averaged from 11 years of data (1983-1993)
- Data tables for a particular location
- Color plots on both global and regional scales
- Over 200 satellite-derived meteorology and solar energy parameters
- Data for the RETScreen® Clean Energy Project Analysis Software

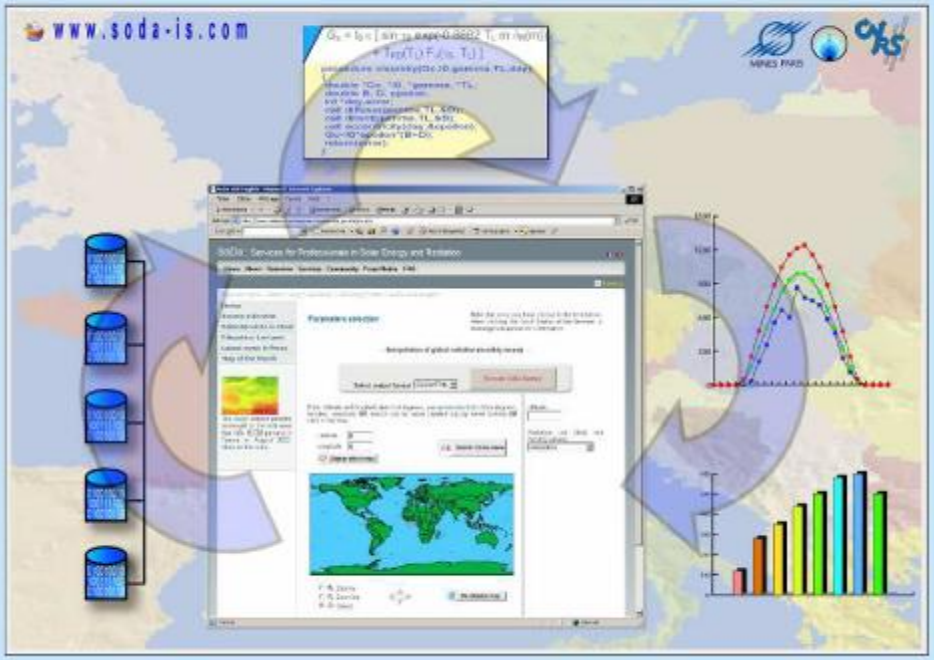
Helioclim Database

Access through SoDa:
http://www.soda-is.com/



- Database and time-series of irradiance or irradiation
- Produced by the processing of satellite images, especially from the Meteosat series of satellites
- Covering Europe, Africa, the Mediterranean Basin, the Atlantic Ocean and part of the Indian Ocean
- Period runs from 1985 onwards

The SoDa Service Integrator



Hosted by École des Mines de Paris

EN-06-04_1: Work with the CEOS Systems Engineering Office and Atmospheric Composition Constellation team to investigate how future space-based measurements can support the needs of the Energy SBA

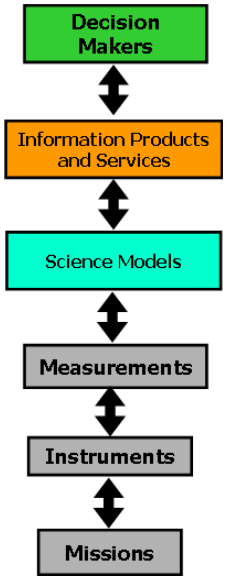
Energy SBA Gap Analysis Report
CEOS Systems Engineering Office (SEO)
September 9, 2008

The following document summarizes a brief analysis of the Energy SBA by the CEOS Systems Engineering Office. Data from the recently updated EO Handbook (2008 draft) and the SEO Systems Engineering Database was used for the assessment. Both of these data resources are rather new and require CEOS validation to eliminate errors and improve accuracy. For this reason, many of the findings in this report should be considered "qualitative" in nature and lead to further more detailed analyses to reach any significant "quantitative" conclusions or recommendations.

Energy SBA Decisions

The following table describes the key Energy SBA decisions and the types of information products and services, model types, and measurements required to support those decisions. This set of data was used a guide to evaluate the impact of potential measurement gaps. The SEO plans to use this organizational construct (shown on far right) to perform gap analyses and assessments for each of the CEOS constellations and SBA areas.

Decisions	Information Product and Services (Types)	Models (Types)	Measurements (Types)
Exploration of traditional and renewable energy resources (i.e., solar, wind, geothermal, ocean)	Reports	Solar Energy Wind Energy Geothermal Energy Ocean Energy Energy Usage	Landscape topography Atmospheric / Ocean Surface Winds Cloud particle properties and profile Liquid water and precipitation rate Radiation budget Aerosols Trace gases
Environmental impacts of energy resource exploration, extraction, and exploitation (i.e., air quality, water quality, land resources, ecosystem health)	Reports Forecasts	Climate Aerosol Transport Atmos Chemistry Energy Usage	Aerosols Trace Gases
Energy production impact on global climate change (i.e., greenhouse gases)	Reports Forecasts	Climate Atmos Chemistry Energy Usage	Radiation budget Atmospheric temperature/humidity Cloud particle properties and profile Cloud type, amount, and cloud top temp Aerosols Trace gases
Long-term climate impact on energy resource supply and demand	Reports Forecasts	Climate Energy Usage	Radiation budget Atmospheric temperature/humidity Cloud particle properties and profile Cloud type, amount, and cloud top temp Aerosols Trace gases
Short- to medium-term weather impact on energy resource supply and demand	Reports Forecasts	Weather Energy Usage	Atmospheric temperature/humidity Cloud particle properties and profile Cloud type, amount, and cloud top temp Land surface temperature Soil moisture Snow cover, edge, and depth
Space Weather impacts on energy transmission systems	Reports Forecasts	Space Weather Energy Usage	Space Weather

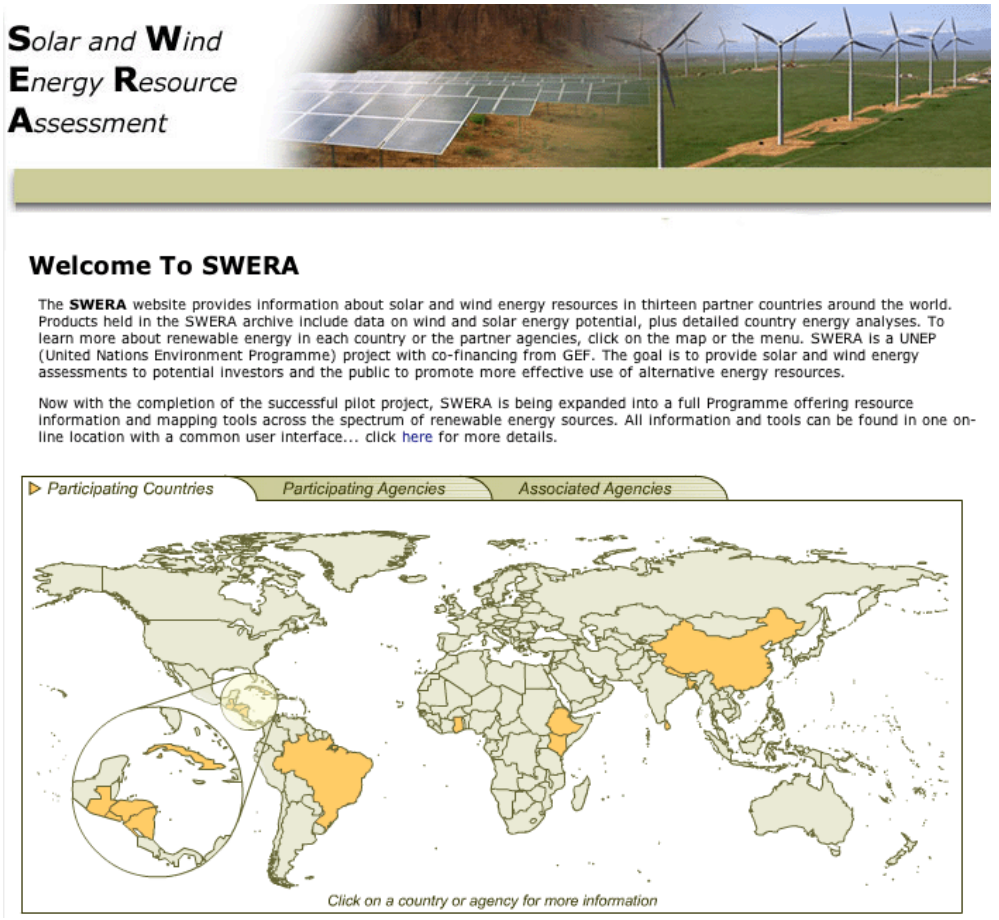


SWERA 2: Renewable Resources for Developing Nations

- UNEP Solar and Wind Energy Resource Assessment (SWERA)

- USGS-led project with NASA and NREL participation

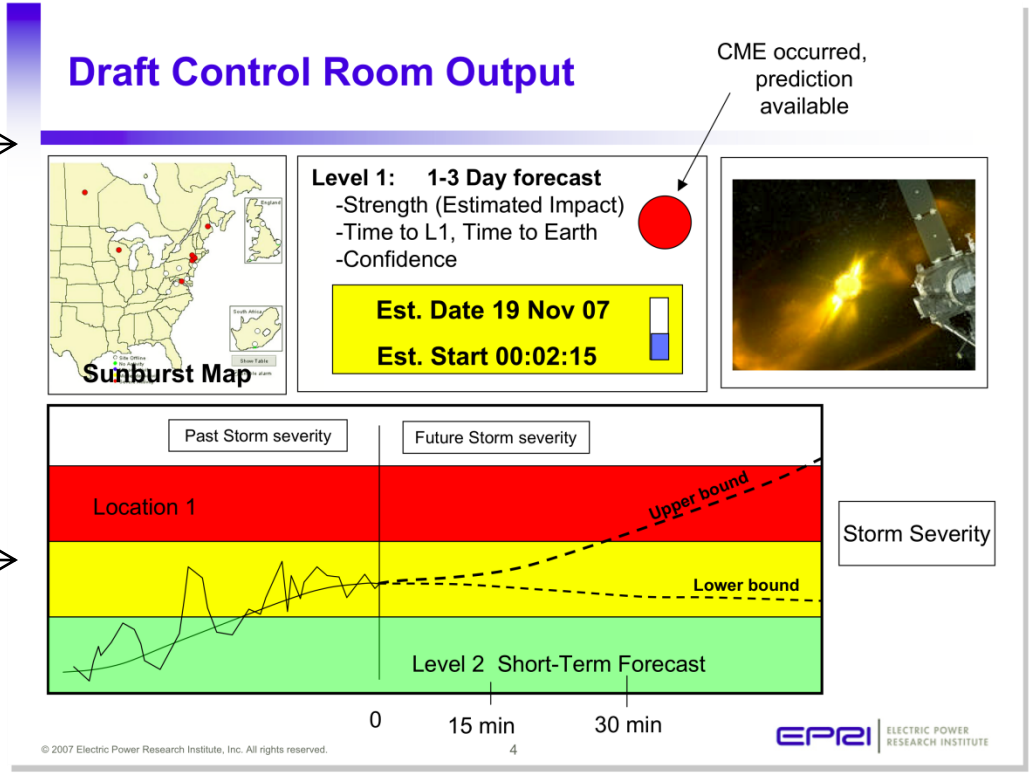
- Data archive, user interface located at UNEP GRiD facility



Space Weather Impacts on Power Grid
NASA-EPRI Collaboration

```
% Level 1 GIC forecast produced by REALTIMEGIC_LEVEL1
%
% The format of the data is as follows:
%  0  0  0  0  0  0 lat1    lon1    lat2    lon2    . . .
% yy  mm  dd  hh  mi  GIC1low  GIC1high  GIC2low  GIC2high  . . .
%
  0  0  0  0    53.16  -99.29  45.39  -68.53
2006 12 14 14      6     76     15     153
```

```
% Level 2 GIC forecast produced by REALTIMEGIC_LEVEL2
%
% The format of the data is as follows:
%  0  0   0  0  0  0  0 lat1   lon1   lat2   lon2    . . .
% yy1 mm1 dd1 hh1 mi1 ss1 GIC1    0   GIC2    0    . . .
% yy1 mm1 dd1 hh1 mi1 ss1 GIC1    0   GIC2    0    . . .
%   .  .  .  .  .  .  .    .    .    .    . . .
%   .  .  .  .  .  .  .    .    .    .    . . .
%   .  .  .  .  .  .  .    .    .    .    . . .
%
  0  0  0  0  0  0  0    53.16  -99.29  45.39  -68.53
2008 03 19 11 02 31    -0.11    0.00    0.13    0.00
2008 03 19 11 04 31     0.02    0.00    0.03    0.00
2008 03 19 11 06 31    -0.02    0.00    0.04    0.00
2008 03 19 11 08 31     0.00    0.00    0.01    0.00
```



Plan for 2009 and Beyond

- Proposed additions to GEO Task EN-07-01 for 2009-11 work plan:
  - Assess the utility of Earth system models to inform energy sector decision making on the future availability of resources in a changing climate (ESA/DLR: Space4Energy project, NASA: Collaboration with Ventyx Energy)
  - Assess the utility of downscaled global climate model projections to regional climate change impacts on the energy sector to examine their potential utility to energy sector decision making (NASA/GISS: pilot study)
- Inventory of renewable energy resources in Africa (DLR, universities, GEO UIC)
- Advanced long-term solar energy mapping (NASA, NREL)
- Building targeting and monitoring (NASA, Natural Resources Canada)
- Satellite-derived building data sets for design (NASA, DOE, ASHRAE)
- GEOSS Architecture Implementation Pilot: multiple energy-related proposals to call for participation (École des Mines/DLR/NASA, NOAA)

CEOS SBA Coordinator Report on CEOS-GEO Actions - Water SBA -

Chu Ishida
JAXA

CEOS-GEO Actions -Water SBA-

- Category 1 Action status
  - WA-6-07_1 Development of SIGMA, web-based application tool for GEONETCast (SIGMACast) (INPE)
    - Release targeted at end of August
  - WA-06-07_2 Preparation of TIGER activities for 2008-2010
    - Launch of science component targeted at September
  - WA-06-07_9 Hold Int'l Hydrometeorological Analysis and Forecasting Course (NOAA)
    - Completed
  - WA-07-01_1 Support AWCI ICG meetings in April and September (JAXA)
    - Meeting was held in April and next meeting is scheduled early November
  - WA-07-01_2 Release WTF-CEOP prototype system (JAXA)
    - Completed
  - WA-08-01_1 Support IGWCO planning meeting in March (JAXA)
    - Completed

CEOS-GEO Actions -Water SBA-

- Categories 2 to 4 Actions
  - 15 Category 2 actions (NOAA(4), INPE(3), NASA(5), NRSCC-CAS(1), CNES(3))
  - 2 Category 4 actions (JAXA/NASA(1), NASA(1))
  - Progress of each action is yet to be checked with agency point of contact
    - Some of Category 2 actions are closed
    - Other actions are to be completed by the end of December
  - Some actions to be highlighted
    - WA-06-07_2 Continue capacity building in Central and South America though SERVIR (NASA)
    - WA-07-01_4 Develop automatic system to acquire information on water quality for the Priba de Sul river (INPE)

CEOS-GEO Actions -Water SBA-

- Actions are limited to some agencies. There should be a mechanism to encourage other agencies to joint the actions at any time.
  - New CEOS tool may help this.
- Good response from INPE. Good personal connection is a key to the whole exercise.
- So far, activities which had been already in action of planned in respective agency have been consolidated. More pro-active coordination should be made in order to make collective CEOS actions.
- Chasing progress of Categories 2-4 actions will be made immediately after SIT-22 to report to CEOS Plenary

CEOS Weather SBA Coordinator Report on CEOS-GEO Actions

Presented by:
Mikael Rattenborg
EUMETSAT Director of Operations

CEOS Weather SBA Status

- 12 Actions were identified at the Washington Workshop in Feb 2008
  - 7 Category 1 actions
  - 4 Category 2 actions
  - 1 Category 3 action
- All these actions were derived from two GEO tasks (WE-06-02 and WE-07-01)

CEOS Weather SBA Status – Category 1 Actions

Action ID	Description	Status
WE-06-02_1	Communicate to CEOS agencies the WMO Vision for the Space-based component of the Global Observing System	Completed - Vision was distributed at SIT-21
WE-06-02_2	CEOS SIT and CEOS Agencies to review the WMO vision for the Space-based component of the Global Observing System and identify how CEOS Constellations and individual CEOS agencies' plans will contribute to the realisation of this vision	Completed - letter with the comments from the CEOS Members was sent to WMO in August 2008
WE-07-01_1	Demonstrate the impacts of MetOp-A IASI on the global medium range forecasts	Milestone 1 has been accomplished - IASI impacts studies were carried out and neutral or moderately positive impacts were observed Milestone 2: “Refinement and alternative tests in cloud detection algorithms” is due by 30 Sept 2008
WE-07-01_2	JCSDA will demonstrate the uses of cloudy radiances from microwave instruments in NCEP GFS systems	Milestone 1 has been accomplished - Global 3dvar (GSI) now includes minimization of cloud liquid water Milestone 2: “Prototype uses of microwave sensor cloud-affected radiance in GFS” is due by 30 Sept 2008

CEOS Weather SBA Status – Category 1 Actions - Ctd

Action ID	Description	Status
WE-07-01_3	Complete assessment of requirements needed to perform an Observing System Simulation Experiment (OSSE) to compare operational benefits of the various ROS constellation options identified in June 2007 at the WMO Workshop on the Re-design and Optimization of the Space-based GOS (OPT-2)	All 5 milestones associated with this action have been completed and a report is available
WE-07-01_4	The JCSDA partners: NRL, AFWA and NCEP will begin assimilation of Windsat wind vectors in their forecast systems	Milestone 1 has been accomplished - Windsat impacts studies were completed with positive impacts on global wind fields near 1000 mb Milestone 2: "AFWA and NRL to complete their tests and demonstration" is due by 30 Sept. 2008.
WE-07-01_6	Develop and test several major radiative transfer components in NCEP global forecast system (GFS) and mesoscale research and forecast system (WRF) with a deliverable of CRTM version 2 which include Zeeman splitting, trace gas, and historical instruments	The first 2 milestones have been accomplished. Milestone 3: "Inclusion of Trace Gas Component" is due on 30 Sept 2008

CEOS Weather SBA Status – Category 2 and 3 Actions

- Milestones/deliverables for Category 2 and 3 actions are currently being clarified and refined