



POSTEL

Pôle d'Observation des Surfaces continentales par TELédétection

[http : //postel.mediasfrance.org](http://postel.mediasfrance.org)

The POSTEL Land Surface Thematic Centre

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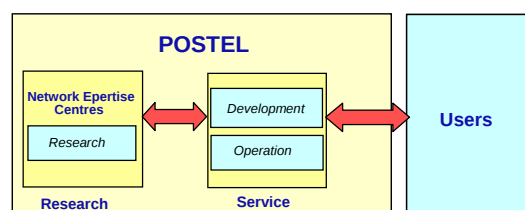
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POSTEL is a thematic centre associating
R&D and services to describe land
surfaces from space Earth Observation

Structure

The POSTEL Thematic Centre is made of :

- a **Network of Expertise Centres** responsible for the product conception, algorithm specification, and validation
- a **Service Centre**, which produces, archives and distributes biogeophysical variables, and assures the interface with the user community as well as the Expertise Centres.



The Expertise Centres are at present teams of CSE / INRA (Avignon), MATIS/CNRM, CNES/SI/MO, VENUS/CESBIO, GOHS/LEGOS (Toulouse), Télédétection/LSCE (Paris), and UCL-Geomatics (Louvain). Other teams are welcome to join POSTEL as it develops further.

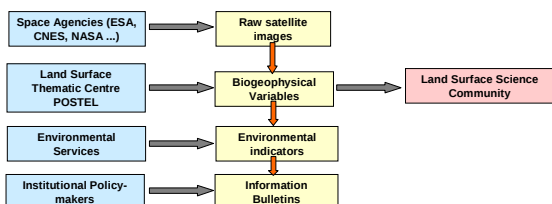
The Service Centre is located in the Medias-France Public Interest Group (Toulouse).

Introduction

The French policy regarding Earth Observation satellite data recommends to set up Thematic Centres to federate scientific expertise and to pool the means to be implemented in order to generate enhanced products derived from satellite data. POSTEL is the national Thematic Centre devoted to Land Surfaces.

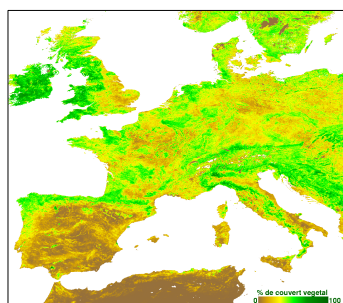
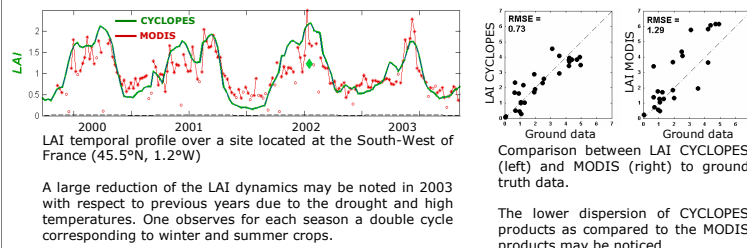
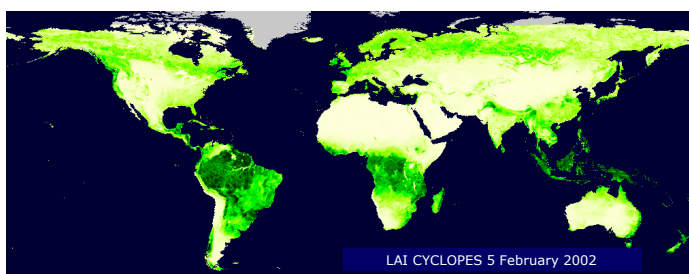
The project started in 2002 and has rapidly undertook a large range of projects made mainly at the continental / global scale and funded by Cnes, ESA, European Commission, Région Midi-Pyrénées, French Ministry of Research, ...

The biogeophysical variables produced by POSTEL are primarily aimed at the international science community specialist of continental surfaces and interfaces. They will also be used in input to environmental services monitoring environmental indicators (water quality, drought, deforestation / afforestation, desertification, crop monitoring ...) which will develop in the GMES framework.

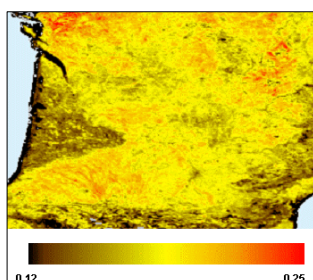


Result example : Cyclopes project

(Coll. INRA - POSTEL - CNRM - CNES - Noveltis - MPI Iéna - MPI Hambourg - UC Louvain)



Fraction of vegetation cover, August 2003.



Broadband albedo, August 2000.

These products are generated from VEGETATION data at 1 km resolution.

First projects

Since 2002, POSTEL has undertaken several types of projects :

- R&D projects**
 - CYCLOPES / FP5 : production of multi-year global biogeophysical variables (LAI, fCover, fAPAR, albedo) at 1 km résolution
 - AMMA / FP6 / API : customization and near real time distribution of Land SAF products to the AMMA community ; processing of SPOT scenes over the AMMA test sites ; reprocessing of the AVHRR 1982 - 2005 archive over the AMMA area.
 - VALERI : LAI and fAPAR ground truth collection over an international test sites network.
- GMES projects**
 - Geoland / FP6 : Geoland co-ordination ; leader of biogeophysical parameter production ; setting up of first elements of a VITO - POSTEL - SAF Land European service
 - VGTAfrica / FP6 : LAI / fCover / albedo processing line development ; the products are distributed in near real time by VITO to African users through Eumetcast.
 - GLOBCOVER / ESA : Prime Contractor for producing a global Land Cover classification at 300 m resolution.
- national space projects**
 - Polder -1,2 & 3 : production in differed time of BRDF, albedo and NDVI.
 - Venus : optical imagery satellite at high space resolution (10 m) and time resolution (2 days) launched in 2009. POSTEL will assure the product distribution and the user interface.

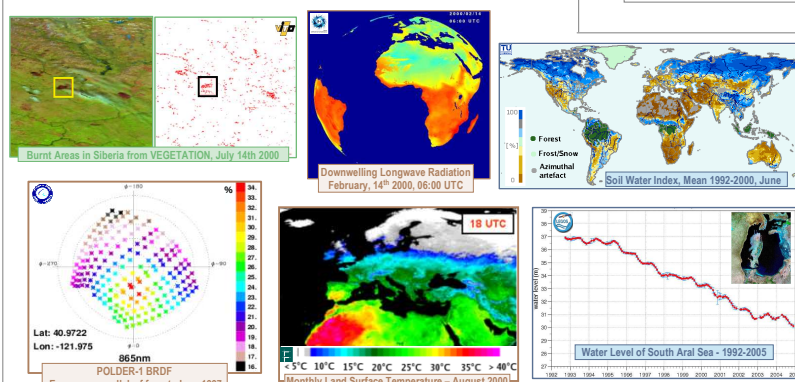
Products and catalogue

The products available in the POSTEL catalogue go far beyond those presented in the examples above. The catalogue assets are those of all the projects POSTEL is involved with.

All the products and associated documentation are available on line free of charge.

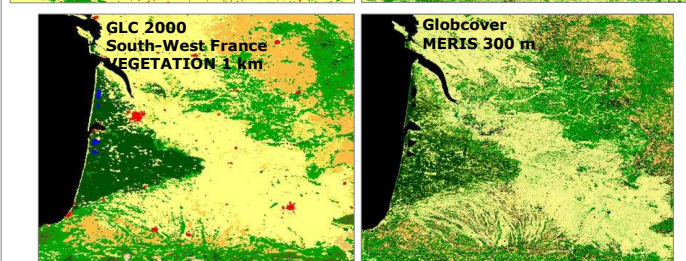
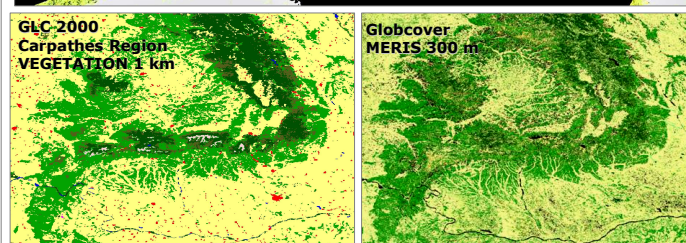
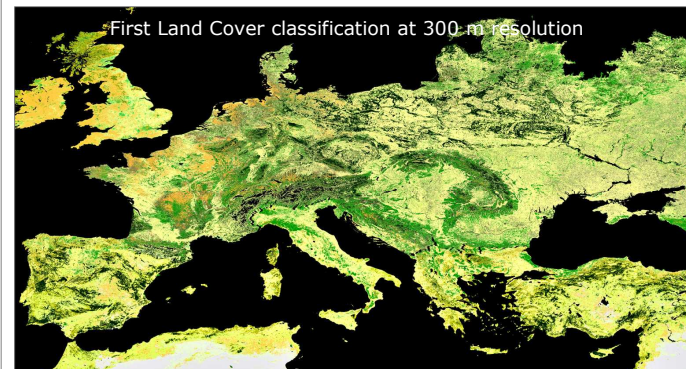
The biogeophysical variables describe :

- vegetation** : LAI, fCover, fAPAR, land cover, burnt areas, surface reflectances
- radiative fluxes** : albedo, surface temperature, downwelling radiative fluxes
- water** : soil moisture, precipitation, water bodies, water level of large river basins



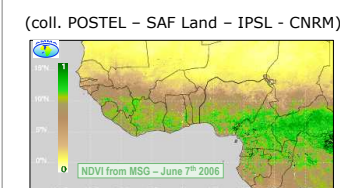
Result example : Globcover project

(Coll. ESA - POSTEL - UCL - Brockmann Cslt - FAO - JRC - EEA - GOFIC)

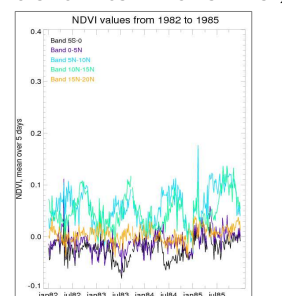


Result example : AMMA project

(coll. CESBIO - POSTEL - CNES - NASA)

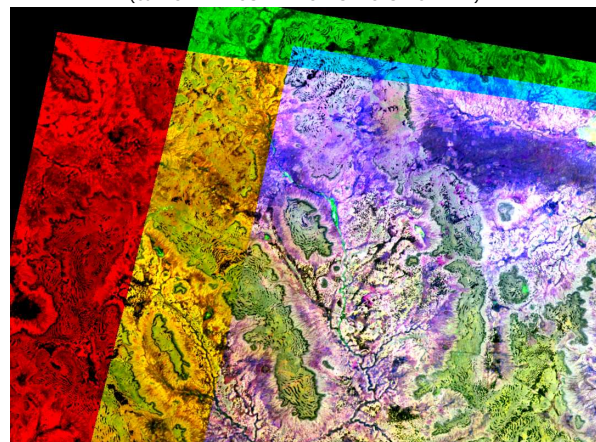


The albedos, downwelling radiative fluxes and surface temperature from SAF Land are customized on the AMMA area and distributed by POSTEL in near real time through the AMMASAT database. POSTEL produces also a daily NDVI from MSG data, corrected for directional effects.



The reprocessing of the AVHRR 1982 - 2005 has started to study the response of vegetation to fluctuations of the precipitation regime in Sahelian regions.

(coll. CETP - POSTEL - CNES - CESBIO - IRD)



50 images SPOT acquired in 2005 and 2006 over Niger, Benin and Mali have been orthorectified and corrected for atmospheric effects. Above, a color composite of 3 SPOT images (XS2 band) acquired at three different dates over an area of plateaux in Niger shows the remarkable quality of geometric corrections.

Product	Parameter	Space Coverage	Time Coverage	Space Resolution	Time Resolution	Sensor
Vegetation	LAI	Continent to Global	1998 - present	1 km to 25 km	1 day to 1 month	AVHRR
	fCover					POLDER
	fAPAR					MSG-SEVIRI
	NDVI					VEGETATION
	Burnt Area	Global	2005	300 m		MERIS
Radiation	Surface Reflectance	Global	2005	300 m		
	BRDF	Continent to Global	1998 - 2005	1 km to 50 km	1/2 hour to 10 days	POLDER
	Surface Albedo					METEOSAT
	Downwelling Shortwave radiation					VEGETATION
Water	Land Surface Temperature	Continent to Global	1992 - 2005	1 km to 1°	1 day to 10 days	AMSR
	Soil Moisture					ERS-Scat
	Evapotranspiration					METEOSAT
	Water Bodies					VEGETATION