



CLARIS | LPB

A Europe-South America Network for Climate Change Assessment

And Impact studies in La Plata Basin

www.claris-eu.org

Deliverables



Instrument: **SP1 Cooperation**

Thematic Priority: **Priority Area 1.1.6.3 "Global Change and Ecosystems"**

FP7 Collaborative Project – Grant Agreement 212492

CLARIS LPB

A Europe-South America Network for Climate Change Assessment and Impact Studies in La Plata Basin

DELIVERABLES

D7.1: An interface for improving prediction capability of climate change societal impacts

Due date of deliverable: Month 3

Start date of project: **01/10/2008**

Duration: **4 years**

Organisation name of lead contractor for this deliverable: IRD

Deliverable No	Deliverable title	WP	Lead beneficiary	Estimated person-months	Real person-months	Nature	Dissemination level	Delivery date
D7.1	An interface for improving prediction capability of climate change societal impacts	WP7	P1-IRD	4,50	3,81	O	CO	3

D7.1: An interface for improving prediction capability of climate change societal impacts

Partners involved: IRD, CONICET

Objective of the Deliverable:

The aim objective of this deliverable is to set-up a data server for the CLARIS LPB Project and to provide a user-friendly interface for the partners to download all types of data they need to realize their own objectives.

Data Storage and Processing Resources:

During the KO Meeting we estimated the size of the data storage capabilities and data processing resources that would be required in the first stage of the project. We also discussed the requirements for access to the data server

The CLARIS LPB Data Server is physically located at CIMA (Centro de Investigaciones del Mar y la Atmosfera; CONICET-UBA) using the facilities of the partner server room (air conditioner, UPS, etc). Only the CLARIS LPB partners have access to the data server through the project internal pages (www.claris-eu.org). Such a restricted access therefore requires a username /password given to each partner when he/she registers as a participant to the project.

After an assessment of the required resources by the members of WP3,4,5,6,7 during the KO Meeting, it was decided to buy a dataserver with the following main characteristics:

- 12 TB of storage expandable to 24TB
- 8 processors of 64bits, for data processing
- 32 GByte of memory (4GBute per processor)

During the KO meeting we decided to store gridded data files and visualize metadata using a DODS (Opendap) server taking into consideration that this service is stable, secured, easy to use, and easy to configure. Moreover, it provides sub-setting and analysis services across a network. It eliminates the need for client software to download large datasets when it only needs small amount of data. Instead, the operation is performed on the server, and the small amount of requested data is transferred over the network. Actually, the installed service is a GrADS DODS Service, but it will be replaced by a THREDDS Server as this kind of services has been use by others institutions more successfully.

We also agreed on using NETCDF as the common file format for gridded data and simulations, that will be provided by the CLARIS LPB WPs during the project. NetCDF is a machine-independent, self-describing (METADATA) and very popular file format for scientific data.

Set-up of the DataServer:

Building on the results fo the CLARIS FP6 Project, the DataServer allows all the project partners to having access to the ERA-40 Reanalysis (see table for a brief of variables stored at data server). The project can access this sets of data thanks to IPSL (France) and an agreement with ECMWF. A similar agreement should be signed in order for all the project partners to have access to the ERA-Interim Data.

Moreover, during the first months of the project, we also adapted a simple tool to search for IPCC files stored in our database by variable, model and scenario. The found results can be used remotely using the Opendap service, downloaded through an ftp link or used locally.

For observational data and for datasever administration purposes a database service (mySQL) has been installed.

The DataServer is also an area of metadata with links to others websites with interesting data for the project (ECMWF, ENSEMBLE, NCEP, CPTEC, CIMA, etc).

To show all of this information to participants has been installed an http service (HTTPD) and a java server named TOMCAT, necessary for GrADS DODS Server runs. That will be use as a tool for future developments.

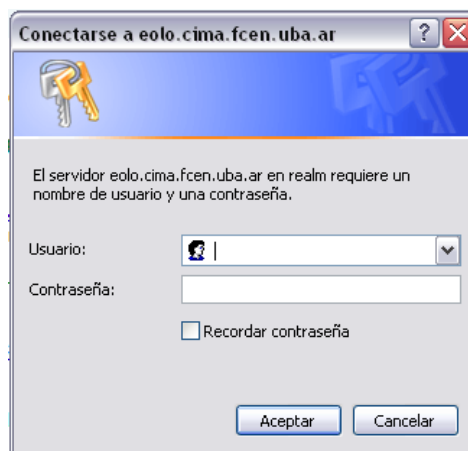
During the project lifetime, the number of tools and services that the data server will host will expand according to the requirement of the project's participants.

Deviations from Annex I:


Due to the delay on the arrival of project funding (6 months), we postponed the acquisition of the new DataServer and built all the new options on the CLARIS FP6 DataServer. Somehow, this delay allowed to revise the resources required, to have better offers at a lower price. Therefore, we should buy the Server during the coming weeks.

CLARIS LPB Data Server:

The following figures illustrate the different steps to log on the DataServer and different options already available to all the partners.




The participants must identify with username/password to access the datasever



CLARIS

DataServer



IPCC Data
 WP sites
 Live Access Server
 IPSL Data-ERA 40

Users of the IPCC data sets downloaded from CLARIS DATASERVER are requested to reference the source of the data in any publication as follows:

"We acknowledge the european project CLARIS (<http://www.claris-eu.org>) for facilitating the access to the IPCC simulation outputs. We acknowledge the international modeling groups for providing their data for analysis, the Program for Climate Model Diagnosis and Intercomparison (PCMDI) for collecting and archiving the model data, the JSC/CLIVAR Working Group on Coupled Modelling (WGCM) and their Coupled Model Intercomparison Project (CMIP) and Climate Simulation Panel for organizing the model data analysis activity, and the IPCC WG1 TSU for technical support. The IPCC Data Archive at Lawrence Livermore National Laboratory is supported by the Office of Science, U.S. Department of Energy."

Users of the ERA40 data sets downloaded from CLARIS DATASERVER are requested to reference the source of the data in any publication as follows and sign the [letter of agreement](#) :
 ECMWF data must not be supplied as a whole or in part to any third party without the authorisation of ECMWF.
 ECMWF data should only be retrieved for projects associated with CLARIS.
 Papers based on ECMWF data should have an acknowledgement of ECMWF as the source of the data using the text at <http://www.ecmwf.int/products/data/archive/index.html> as a guideline.

Example of search of IPCC data stored at dataserver, that allow to search for scenario, data type, frequency, variable, and model.

Search Model Data

scenario
 all
 1pctto2x
 20c3m
 20co2
 picntfr
 sres2a1b
 sres2a2
 sresb1

data type
 all
 atmosphere
 ocean

frequency
 all
 daily
 monthly
 annual

variable
 all
 cdd
 cl
 cft
 efr
 evap
 fd
 geopath100
 geopath200
 geopath500

model
 all
 bccr_bcm2_0
 bcc_cm1
 cccma_cgcm3_1
 cccma_cgcm3_1_163
 cnrm_cm3
 cnrm_cm3
 csiro_mkc3_0
 csiro_mkc3_5
 gfdl_cm2_0

Send

#	SCENARIO	TYPE	FREC	VARIABLE	MODEL	FILE	METADATA
1	20c3m	atm	da	tas	ipsl_cm4	tas_A2_1961-2000.nc	X
2	20c3m	atm	da	tas	gfdl_cm2_0	tas_A2_19860101:19901231.nc	X
3	20c3m	atm	da	tas	gfdl_cm2_0	tas_A2_19810101:19851231.nc	X
4	20c3m	atm	da	tas	gfdl_cm2_0	tas_A2_19610101:19651231.nc	X
5	20c3m	atm	da	tas	gfdl_cm2_0	tas_A2_19760101:19801231.nc	X
6	20c3m	atm	da	tas	gfdl_cm2_0	tas_A2_19910101:19951231.nc	X
7	20c3m	atm	da	tas	gfdl_cm2_0	tas_A2_19660101:19701231.nc	X
8	20c3m	atm	da	tas	gfdl_cm2_0	tas_A2_19710101:19751231.nc	X
9	20c3m	atm	da	tas	gfdl_cm2_0	tas_A2_19960101:20001231.nc	X
10	20c3m	atm	da	tas	cnrm_cm3	tas_A2.nc	X
11	20c3m	atm	mo	tas	mri_cgcm2_3_2a	tas_A1_1901-2000.nc	X
12	20c3m	atm	mo	tas	inmcm3_0	tas_A1.nc	X
13	20c3m	atm	mo	tas	giss_aom	tas_A1.nc	X
14	20c3m	atm	mo	tas	ipsl_cm4	tas_A1_1860-2000.nc	X
15	20c3m	atm	mo	tas	giss_model_e_h	tas_A1_GISS3_20C3M.run1.nc	X
16	20c3m	atm	mo	tas	ukmo_hadgem1	tas_A1.nc	X
17	20c3m	atm	mo	tas	ncar_ccsm3_0	tas_A1_20C3M_1.CCSM.atmm.1980-01_cat_1989-12.nc	X
18	20c3m	atm	mo	tas	ncar_ccsm3_0	tas_A1_20C3M_1.CCSM.atmm.1870-01_cat_1879-12.nc	X
19	20c3m	atm	mo	tas	ncar_ccsm3_0	tas_A1_20C3M_1.CCSM.atmm.1960-01_cat_1969-12.nc	X
20	20c3m	atm	mo	tas	ncar_ccsm3_0	tas_A1_20C3M_1.CCSM.atmm.1900-01_cat_1909-12.nc	X
21	20c3m	atm	mo	tas	ncar_ccsm3_0	tas_A1_20C3M_1.CCSM.atmm.1910-01_cat_1919-12.nc	X
22	20c3m	atm	mo	tas	ncar_ccsm3_0	tas_A1_20C3M_1.CCSM.atmm.1920-01_cat_1929-12.nc	X
23	20c3m	atm	mo	tas	ncar_ccsm3_0	tas_A1_20C3M_1.CCSM.atmm.1940-01_cat_1949-12.nc	X
24	20c3m	atm	mo	tas	ncar_ccsm3_0	tas_A1_20C3M_1.CCSM.atmm.1880-01_cat_1889-12.nc	X
25	20c3m	atm	mo	tas	ncar_ccsm3_0	tas_A1_20C3M_1.CCSM.atmm.1950-01_cat_1959-12.nc	X
26	20c3m	atm	mo	tas	ncar_ccsm3_0	tas_A1_20C3M_1.CCSM.atmm.1930-01_cat_1939-12.nc	X
27	20c3m	atm	mo	tas	ncar_ccsm3_0	tas_A1_20C3M_1.CCSM.atmm.1890-01_cat_1899-12.nc	X
28	20c3m	atm	mo	tas	ncar_ccsm3_0	tas_A1_20C3M_1.CCSM.atmm.1970-01_cat_1979-12.nc	X
29	20c3m	atm	mo	tas	ncar_ccsm3_0	tas_A1_20C3M_1.CCSM.atmm.1990-01_cat_1999-12.nc	X
30	20c3m	atm	mo	tas	gfdl_cm2_0	tas_A1_186101-200012.nc	X
31	20c3m	atm	mo	tas	gfdl_cm2_0	tas_A1_186101-200012.nc	X
32	20c3m	atm	mo	tas	gfdl_cm2_0	tas_A1_186101-200012.nc	X
33	20c3m	atm	mo	tas	mpi_echam5	tas_A1.nc	X
34	20c3m	atm	mo	tas	mpi_echam5	tas_A1.nc	X
35	20c3m	atm	mo	tas	mpi_echam5	tas_A1.nc	X
36	20c3m	atm	mo	tas	bcc_cm1	tas_A1_1871_2003.nc	X
37	20c3m	atm	mo	tas	miroc3_2_medres	tas_A1.nc	X
38	20c3m	atm	mo	tas	bccr_bcm2_0	tas_A1_1.nc	X

It is possible to click on the link under the FILE column, to get the file from the FTP service or click on the symbol under the METADATA column to get information about the file, spatial coverage, time coverage, variable unit, and all the metadata stored in the NETCDF file formatted file.



[GrADS-DODS Server - top level - sresa2 - atm - da - tas - ipsl_cm4 - run1 - tas_A2_2046-2065](#)

GrADS-DODS Server - info for /sresa2/atm/da/tas/ipsl_cm4/run1/tas_A2_2046-2065 : [dds](#) [das](#)

DODS URL: http://eolo.cima.fcen.uba.ar:9090/dods/sresa2/atm/da/tas/ipsl_cm4/run1/tas_A2_2046-2065

Description: IPSL model output prepared for IPCC Fourth Assessment SRES A2 experiment
Documentation: none provided


Longitude: 0°E to 356.25°E (96 points, avg. res. 3.75°)
Latitude: -90°N to 89.9999°N (72 points, avg. res. 2.54°)
Altitude: 0 to 0 (1 points)
Time: 12:01Z04MAY2045 to 20:03Z07JAN2065 (7200 points, avg. res. 23.96 hours)
Variables: (total of 3)
 lon_bnds
 lat_bnds
 tas surface air temperature

[back to parent directory](#)

complete metadata listing:

Global attributes:
 title: "IPSL model output prepared for IPCC Fourth Assessment SRES A2 experiment"
 Conventions: "COARDS"
 history: "Wed Jun 14 00:10:29 GMT-03:00 2006 : imported by GrADS-DODS Server 1.2.9"

Example of METADATA, shown using GrADS DODS for the TAS Variable (look at the DODS URL link for remote access to the file)



GrADS-DODS Server - User's Guide

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Accessing data from a web browser

Browsing server contents

To browse a directory of the datasets being served on a GDS, point your web browser to the base URL of the GDS. This will usually be a URL of the form `http://machine.domain:9090/dods/`.

This directory listing will provide links to "info", "dds" and "das" for each dataset. The first link provides a Web page with a brief summary, followed by a complete metadata listing, for the dataset. The other two provide links to the DODS Data Descriptor Structure, which specifies the logical structure of the dataset, and Data Attribute Structure, which provides descriptive information about the dataset.

You can also retrieve a complete dataset listing for a GDS by adding `/xml` to its base URL.

If you are given a GDS dataset URL, you can enter that URL in your web browser, and get the "info" listing. This listing will contain links back to the dataset directory for the GDS.

User guidance and documentation

Table of ERA-40 (IPSL) stored at CLARIS-LPB dataserver

Parameter Name	GRIB Name	Netcdf Name	GRIB Number	Units
Volumetric Soil water layer 1	swl1	swl1	39	m**3 s**-3
Volumetric Soil water layer 2	swl2	swl2	40	m**3 s**-3
Volumetric Soil water layer 3	swl3	swl3	41	m**3 s**-3
Volumetric Soil water layer 4	swl4	swl4	42	m**3 s**-3
Sea Surface temperature	Sstk	sstk	34	K
Géopotential	Z	z	129	m**2 s**-2
Total column water	Tcw	tcw	136	kg/m^2
Soil temperature level 1	stl1	stl1	139	K
Mean sea level pressure	Msl	msl	151	Pa
10 m U wind component	10u	u10	165	m s**-1
10 m V wind component	10v	v10	166	m s**-1
2 m temperature**	2t	t2	167	K
2 m dewpoint temperature	2d	d2	168	K
Soil temperature level 2	stl2	stl2	170	K
Land sea mask	Lsm	lsm	172	(0,1)
Albedo	Al	al	174	(0-1)
Soil temperature level 3	stl3	stl3	183	K
Skin temperature	Skt	skt	235	K
Soil temperature level 4	stl4	stl4	236	K
Large scale precipitation*	Lsp	lsp	142	m
Convective precipitation*	Cp	cp	143	m

2D SURFACE DATA

Parameter name	GRIB/NETCDF name	GRIB number	Units
Geopotential	Z	129	m**2 s**-2
Température**	T	130	K
Eastward wind component U	u	131	m s**-1
Northward wind component V	V	132	m s**-1
Specific humidity**	q	133	Kg Kg**-1
Relative humidity**	r	157	%

3D PRESSURE LEVELS