XXVII Meeting of International Cooperation Directors and Entities in charge of STI in LAC

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Some of the objectives of this XXVII Meeting are:

... exchange experiences and best practices in science, technology and innovation (STI)

... South-South cooperation and triangular cooperation in STI
Cooperation tools: different scenarios

Research

Training

Areas to develop

Developed areas
When training is important ……..

• Stays abroad for Young Researchers and Fellows

• Stays in Argentina for foreign experts
When capacities are similar ……..

- Bilateral Projects Oriented
- Fellowships for foreign PhD students in Argentina
- International Research Groups (GII) Research and PhD training program
- Joint research laboratories
- International centers and projects in Argentina
Binational research centers
Structural biology and neurobiology (With Max Planck Society, Germany)
Climate and its Impacts (with France)
Computer Simulation, Modelization and Visualization (planned with France)

Binational laboratories
Fluid mechanics Laboratory (with France)
Molecular vectors Laboratory (with France)
Economics and work evolution (with France)
Informatics, Logic, languages, verification and systems (with France)
Infection and Immunity Laboratory (with France)
Laser Imaging Detection and Ranging LIDAR
Southern patagonia

AERONET Lidar network with NASA and SATREPS Japan

Construction of LIDAR atmospheric monitoring system for airports
## SAC D Satellite

**designed and assembled by CONAE INVAP**

<table>
<thead>
<tr>
<th>Name</th>
<th>Operator</th>
<th>Purpose</th>
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<tr>
<td><strong>Aquarius</strong></td>
<td>NASA</td>
<td>Ocean <em>salinity</em> research</td>
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<tr>
<td><strong>CARMEN I</strong></td>
<td>CNES</td>
<td>SODAD particles and debris in space, ICARE <em>cosmic radiation</em> and its effects on electronics</td>
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<tr>
<td><strong>DCS</strong></td>
<td>CONAE</td>
<td>data provided by platforms on Earth. <a href="#">Argos System</a></td>
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<td><strong>HSC</strong></td>
<td>CONAE</td>
<td><em>aurorae</em>, fires, and lights</td>
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<td><strong>MWR</strong></td>
<td>CONAE</td>
<td><a href="#">Radiometry</a></td>
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<td><strong>NIRST</strong></td>
<td>CONAE</td>
<td><a href="#">Infrared</a> sea temperatures</td>
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<td><strong>ROSA</strong></td>
<td>ASI</td>
<td>Temperature and humidity in the atmosphere</td>
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<td><strong>TDP</strong></td>
<td>CONAE</td>
<td><a href="#">GPS navigation and inertial guidance</a></td>
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*Notes:

- [Argos System](#)
- [Infrared](#)
Ionospheric Radar Experimental Station

UMET Puerto Rico

Jicamarca Radio Observatory

Peru

CONICET
Pierre Auger Observatory Malargue Mendoza

First International Observatory on Cosmic Particules

50 institutions from 17 countries

3000 detectors over 3000 sq Km
4 fluorescence telescopes
1 LIDAR

Development of muons detectors

Distributed network of sensors and data handling

Teraflop levels of data processing
AGGO Argentine German Geodetic Observatory

6 international services:

- IERS, Int. Earth Rotation and Reference System Service
- IVS, Int. VLBI Service for Geodesy and Astrometry
- ILRS, Int. Laser Ranging Service
- IGS, Int. GNSS Service
- BIPM-UT, Universal Time Service
- IGFS, Int. Gravity Field Service
How to address complex questions?
Networking and data integration
Only a responsability of researchers?
- 75% of land is arid or semi arid
- And 80% of that shows some degree of degradation

Land degradation and Desertificacion National Observatory

- 20 monitoring sites in dry lands or at risk
- Network of 16 Institutions: CONICET 10 Universities and 5 govt agencies
- Biophysical and socio economic indicators

FAO Pilot study in Argentina, China, Cuba, Mozambique, Tunisia and South Africa
• Marine research data base
• Networking of oceanographic campaings
Consortia for marine and coastal studies
Atmospheric Research Database of climate data
Climate change modelling and impacts evaluation
Climate risk management in the southern Andes
Paleoclimate studies
National Inventory of Glaciers

• IANIGLA (Centre for Snow Research, Glaciology and Environmental Sciences)
  • Provides a long-term study of ice bodies, their dynamics and hydrology
  • Involves systematic mapping and monitoring methodologies.
  • Includes a Validation with international experts and standards
OPEN DATA

........an opportunity for big science
....a challenge to scientists and institutions traditions

.....an opportunity for agencies collaboration
DATA INTEGRATION

DATA LAYERS
- Demography
- Geographic/Cadaster
- Communication
- Institutional
- Economics
- Climate
- Environment

INTERDISCIPLINARY DISCIPLINAR
- Scientific
- Technical data

PRODUCTS
- Risk map
- Cost/Benefit Analysis
- On time damage & loss estimations
- Land Use Planning tool
- Climate Impact Scenarios
- Analytic models

DATA INTEGRATION
Open Data

• Allows different interpretations and uses

• Long term preservation maintains data integrity

• Optimal use or resources (no repetition of data generation)

• Increases individual and institutional visibility

• Provides a working platform for complex research

• Assures data quality and reliability. (prevents data fabrication, copy and “forced” hypothesis)
Research cycle

Planning
  OA resources
  OA policy
  Data management plans

Implement

Publishing

Impact
  Data search engines
  Data mining
  Data metrics

Reuse
  OA licenses
  Ethics

Preservation
  OA repositories
  Data curation centers

OA Data
  Data sharing

O repositories
  OA journals
  Data Journals
  Open peer review
Institutional research data repositories

Source: Datacite – re3data
Simplified work flow

Platform Development

DMP definitions

CORE METADATA common to all data

DATA FILING

DATA FILING CURATION

OPERATING REPOSITORY

RESEARCHER
• Information in **thematic** repositories needs efforts in ......

• Primary data available and secured
• Quality standards for data and databases
• Consensus on core metadata system
• Constant Data monitoring
• Interoperable Databases
• Georeferenced data
• Data quality control
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PRODUCTS

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Disciplinar
Scientific
Technical data

DATA INTEGRATION

INTERDISCIPLINE
## DATA MANAGEMENT PILOT PROJECTS

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<tr>
<th>Actions</th>
<th>Responsible</th>
<th>Date Expected</th>
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<tr>
<td>Law 26.899</td>
<td>MINCYT</td>
<td>Issued</td>
</tr>
<tr>
<td>Regulatory decree</td>
<td>MINCYT</td>
<td>Mid 2016</td>
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<tr>
<td>Institution guidelines</td>
<td>CONICET</td>
<td>Mid 2016</td>
</tr>
<tr>
<td>Metadata system</td>
<td>MINCYT</td>
<td>Pilot early 2016</td>
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<tr>
<td>Data Management Plan</td>
<td>CONICET /UNLP</td>
<td>Mid 2016</td>
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<tr>
<td>Software selection</td>
<td>CONICET</td>
<td>Mid 2016</td>
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<tr>
<td>Implementation</td>
<td>CONICET /UNLP</td>
<td>Late 2016</td>
</tr>
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1 National Observatory on Land Degradation and Desertification
2 CONICET/UNLP/CIC Environment Observatory
3 Marine sciences
Policies needed to manage scientific data:

- Defined Policies in funding agencies and universities
- Establishment of roles and responsibilities
- Specific funding for Open data programs
- Specific trained personnel (curation, training of researchers, preservation integration of data)
- Infrastructure for data storage processing, distribution, interoperability

Interagencies and intergovernment collaboration
Invitation to conform......

Common Platform for Open Data Repositories in LAC 

.........to share ........

• Experiences
• Technologies
• Protocols
• Documents on policies
• Standards

• Experiences: La Referencia and the initiative of ICSU in Africa and ICSU LAC
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Muchas Gracias
Thank you

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