

Plans for a prototype WCD at the Argentinian site

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Mission:

- 1) Search for a cheap solution for a tank:
Plastic 25m³ commercial tank, local manufacturers, no bladders.
- 2) Test the freezing conditions:
Ice in water, transparency, rate, tank integrity.
- 3) To prove how people willing to collaborate in SGSO works for a dedicated project.
We know all people except those from Salta.

Financing:

ANPCyT (Agencia Nacional de Promoción Científica y Tecnológica)
Project presented in September 2018, results in ~July (50% chance)
Financed by the Inter-American Development Bank.
~USD 25K + one graduate student fellowship for 3 yr.

Future: Secretaría de Ciencia y Técnica (Secretary of Science and Technology)
This will be a major step and requires care and time to be prepared.
Now that we have a WPaper (and a kind of organization?) this is feasible.

Collaborators directly involved:

- 1) Electronics slow control and operation: solar panels, temp. sensors, camera, water transparency.
Eng. Daniel Hoyos (**UNSa**)
Eng. Víctor Hugo Serrano (**UNSa**)
Germán Salazar (**UNSa**)
- 2) Camera data processing: water freezing studies by image processing (feasibility ?).
Silvina Campos (**UNSa**)
José Ignacio García (**UNSa**)
- 3) Simulations: much more than just a single tank simulation.
Patricia Hansen (**UNLP**)
Analisa Mariazzi (**UNLP**)
Diego Ravignani (**ITeDA**)
Diego Melo (**ITeDA**)
Federico Sánchez (**ITeDA**)
Daniel Supanitsky (**ITeDA**)
- 4) PMT electronic boards (**LAGO like**)
Eng. Horacio Arnaldi (**CAB**)
- 5) Data analysis and managing: space weather (single tank), others based on array simulations.
Sergio Dasso (**IAFE**)
Ana Pichel (**IAFE**)
Adrián Rovero (**IAFE**)
- 6) External collaborators:
Fabian Schüssler (**CEA**, France)
Marcos Santander (**Alabama Univ.**, USA)
Miguel Mostafa (**Penn. State**, USA)

UNSa: Universidad Nacional de Salta, Salta.

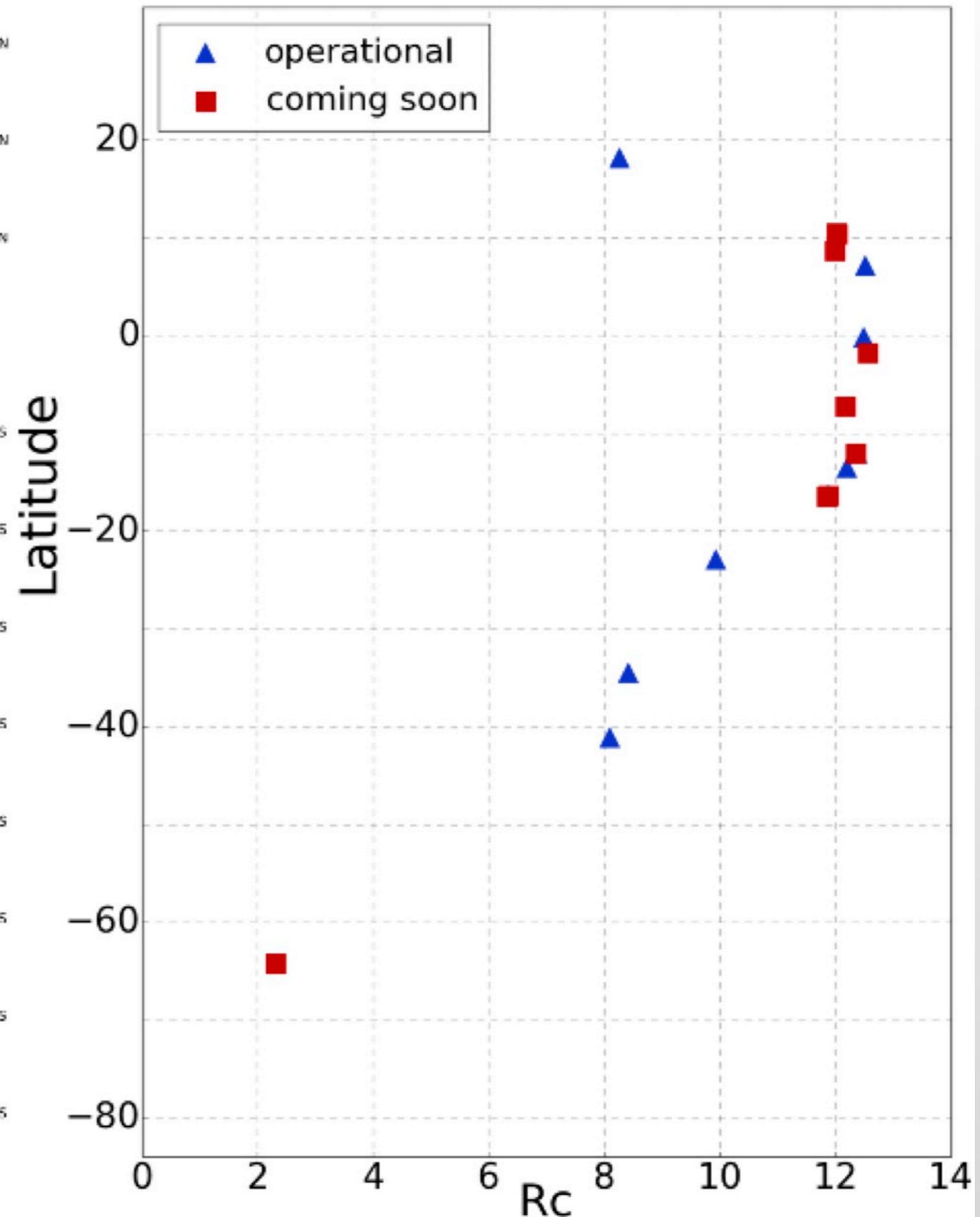
UNLP: Universidad Nacional de La Plata, La Plata, Buenos Aires.

ITeDA: Instituto de Tecnologías en Detección y Astropartículas, Buenos Aires.

CAB: Centro Atómico Bariloche, CNEA Bariloche, Río Negro.

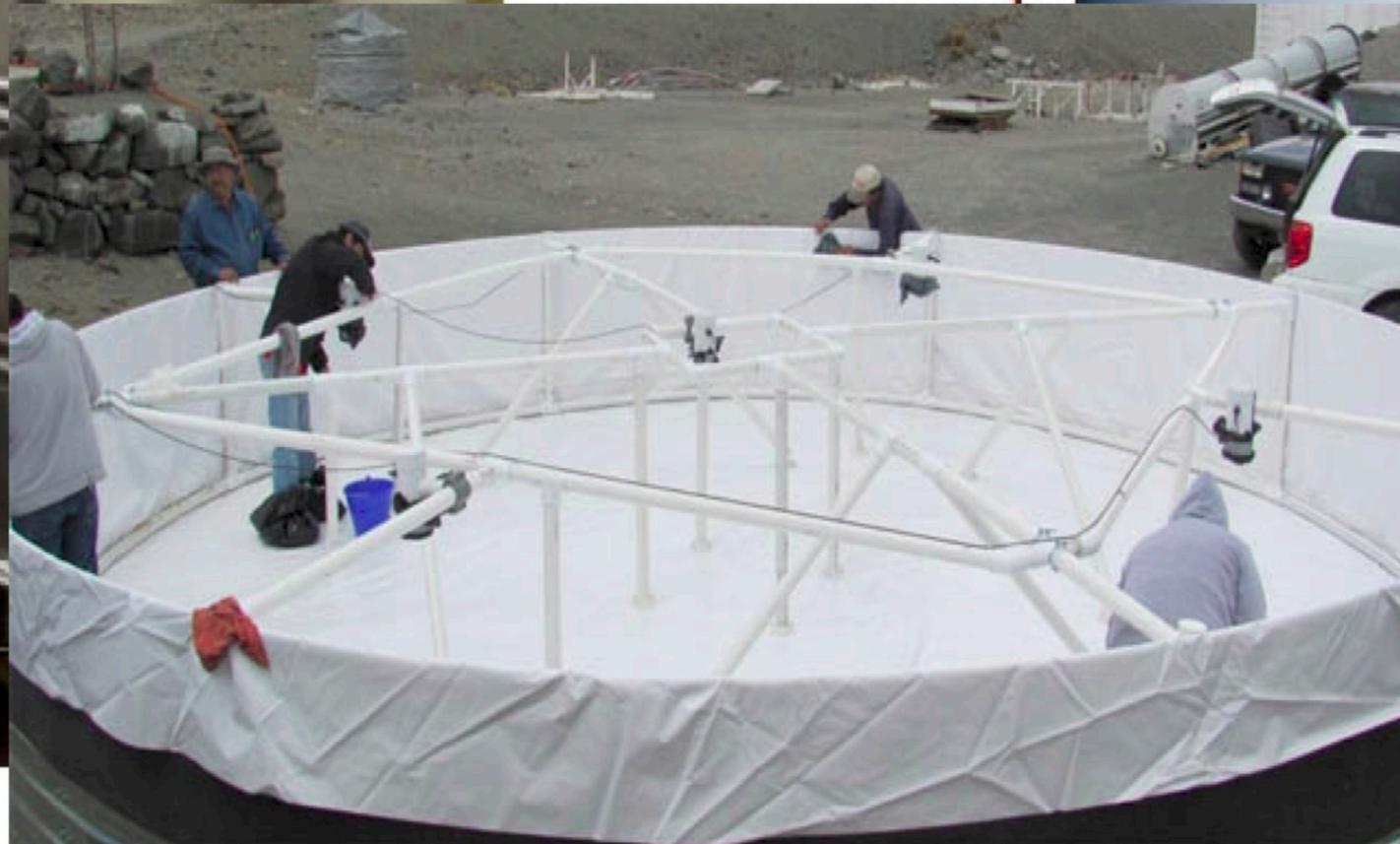
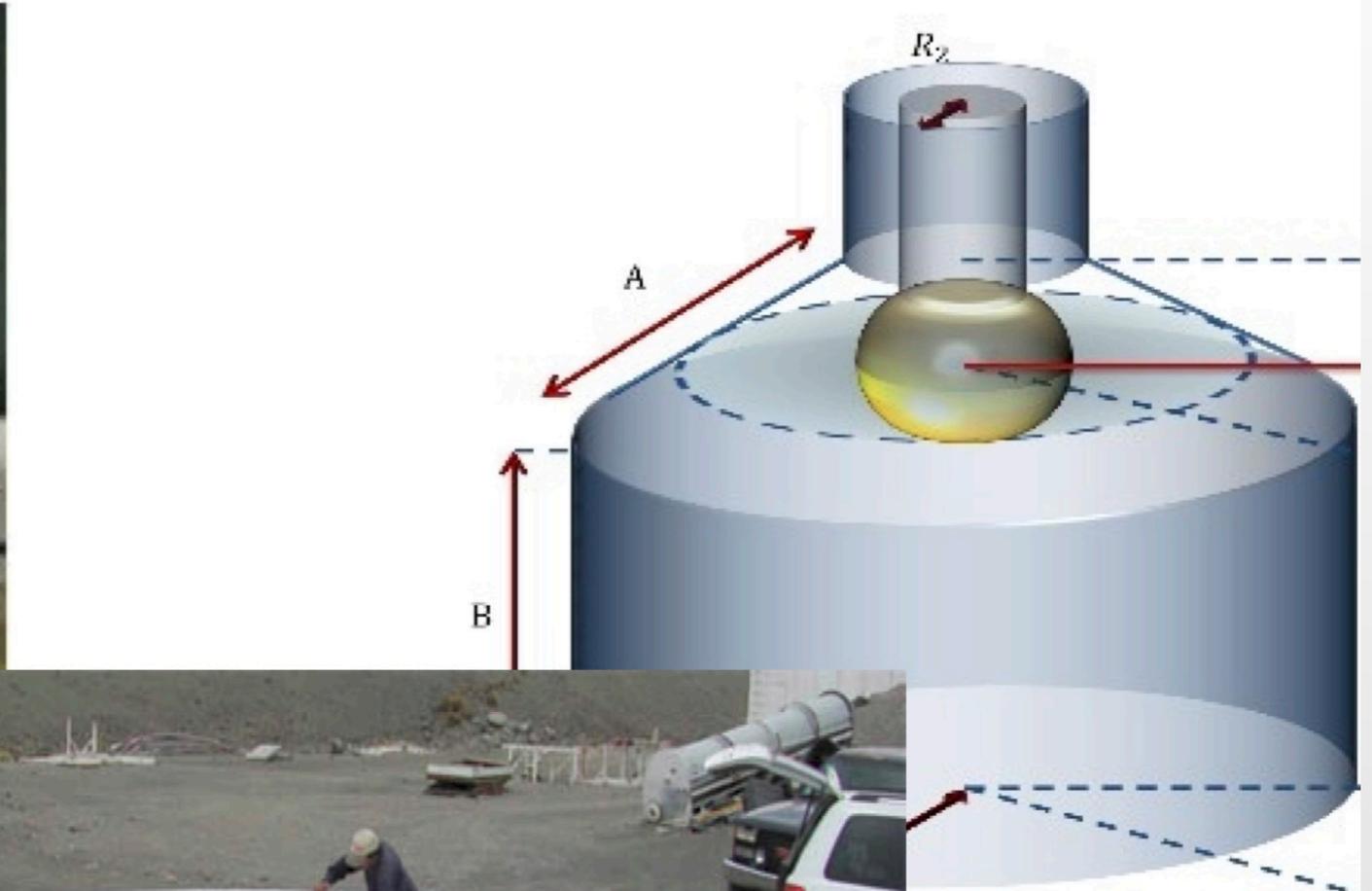
LAGO: Latin America Giant Observatory (space weather)

Asorey+Dasso for the LAGO Coll., ICRC 2015, 247

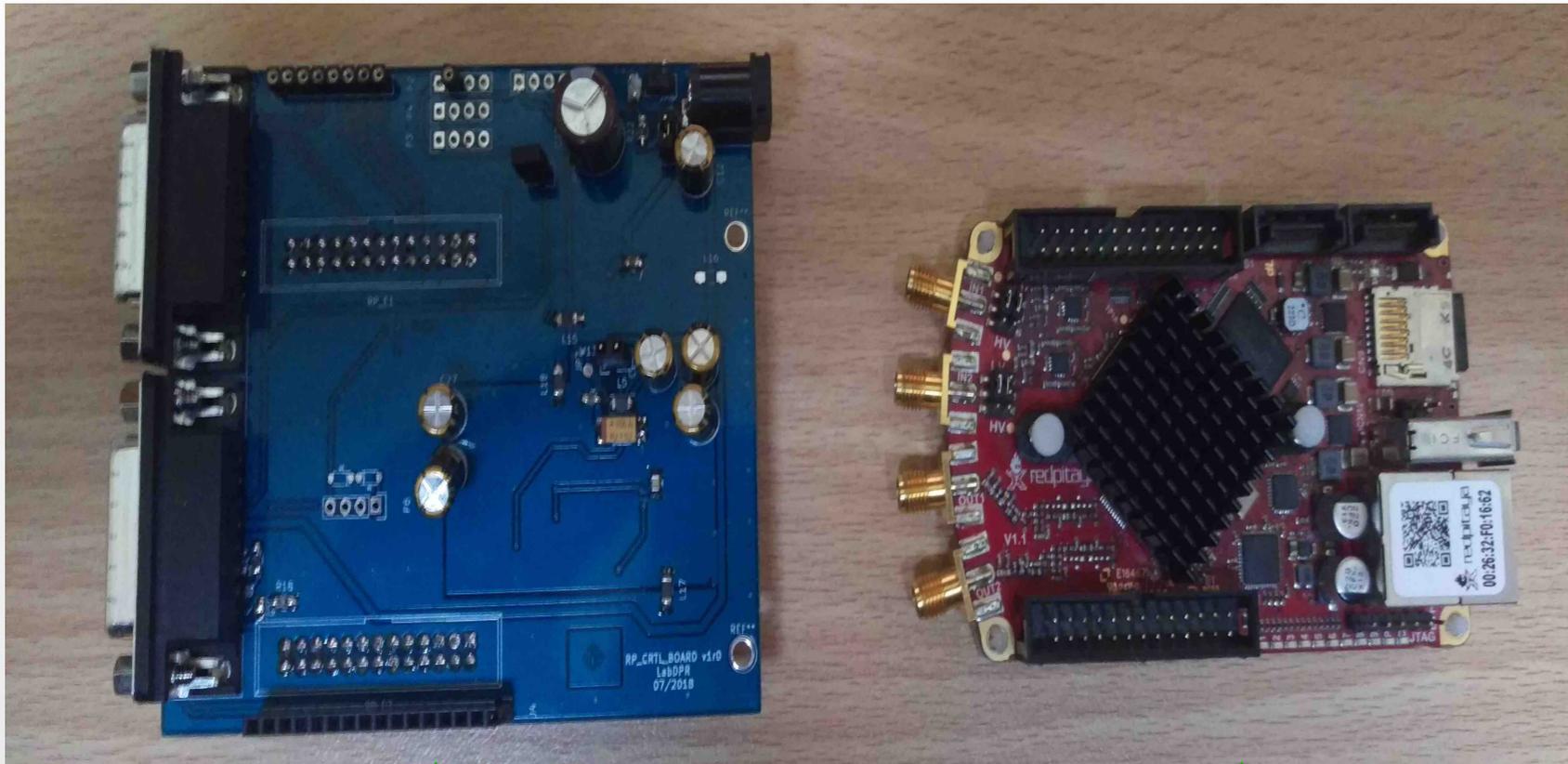


LAGO: WCDs

Electronics for a single PMT



PMT and electronics:



Dedicated interphase:
Horacio Arnaldi, CAB



Commercial board:
(RedPitaya)
Two acquired already
~ USD 350 each

PMT: Antares
Fabian Schüssler, CEA



Detector parts:



Commercial tank 25 m³ (~3m x 4m)
In contact with Duraplas (will seek for others)
~USD 4K (single)

Opacity studies needed:

Probably an addition of carbon to the commercial mix.
Previous tests using a small tank.

UNSa: experience with these kind of systems:

Power system (solar panels).

Water filtration (take LAGO experience).

Sensors for temperature and transparency measurements.

Cameras to watch the water surface.

Link for communication.

Site for the prototype:



Site for the prototype:



Site for the prototype:



Operation:

The installation of a prototype WCD will serve as a test for local collaborators and to the search of a cheap tank for SGSO.

The design is simple and the provision of all parts have a designated responsible.

Works starting 2020. Installation expected to 2021 (?).

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Installation is expected to start 2020.

Thanks

Road map:

Road map:

Location:

