

The ALMA site visit to the region 7-9 Dec 2017

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Partners

CONICYT (Chilean Funding Agency)



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Fly Santiago-Calama 2h about 20 flights daily
Drive to San Pedro de Atacama 100 km
Drive 15min to the ALMA gate
Drive 15 min to the OSF site at 3,000 m.a.s.l.



Calama is a mining town
There they are the largest copper
mines





San Pedro-OSF-Alma

SP- 2,400 m.a.s.l.
OSF 3,000 m.a.s.l.
ALMA 5,000 m.a.s.l.

access:
private ALMA road
highway 27





OSF @3,000 m 150-250 people live
and work there





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No installed non-ALMA project so far

- at different stages of proposal
 - TAO
 - CAT
 - Simons Observatory
 - Polar Bear
 - APEC

Power

- They produce their own power having 3 gas turbines, 2 for continuous use 1 spare
- 2 of them produce 7 MW/h. They only need one at the moment. The natural gas is trucked but now ALMA will connect to a gas pipeline that goes from the Pacific coast to Argentina
- Power is distributed at 23 KV and transformed down to 400 V three phases at each antenna.

What they would offer

- Access to the site
- security, emergency medical services
- optical fiber connection
- power at 400V 3 phases
- space for buildings
- the site for the Observatory at 5000 m

Water

- There are two rivers that have water all year.
- One is used for potable water for San Pedro
- The other one for irrigation
- in January February they overflow



San Pedro river

creek

reservoir

water treatment plant

B-245

23

San Pedro de Atacama

27

Highway 27
to Argentina
access to the
upper ALMA
site

reservoir

to ALMA

Coyo

Solor

Google Earth

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3 km





But ALMA trucks 100 m³ of potable water every day from 100 km away!



Upper ALMA gate on HWY 27 to be used for water trucks?



Roads

all ALMA roads are 10m wide



Sites 1 and 3 and 360m r circle



Site 1

- altitude 5,018 to 5,033 m
- Circle of 250m r
- soft volcanic ash



site 2



Site 2

- altitude 4,993 to 5,033 m
- 200 m radius
- near transformer
- soft soil with some rocks



Site 3

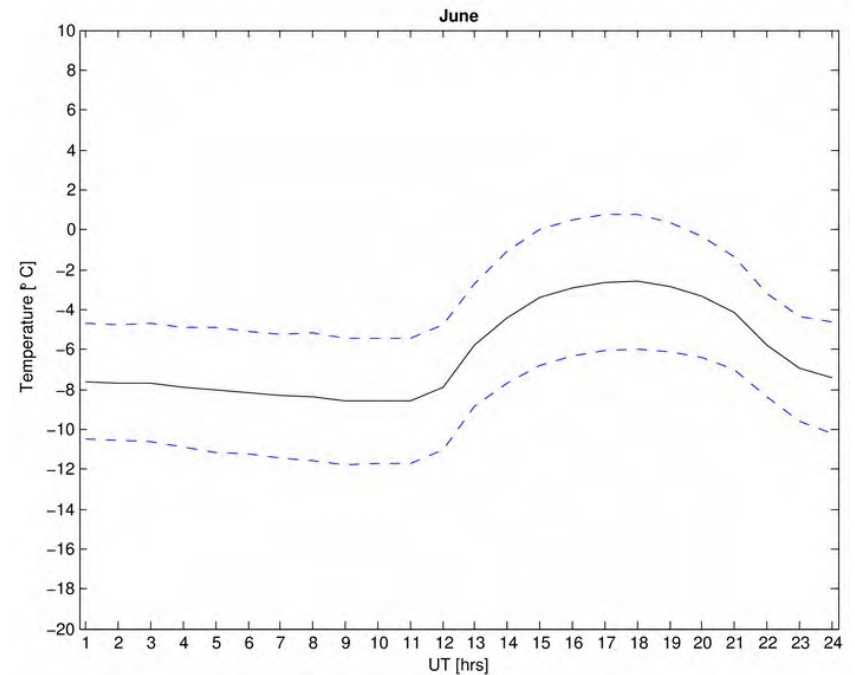
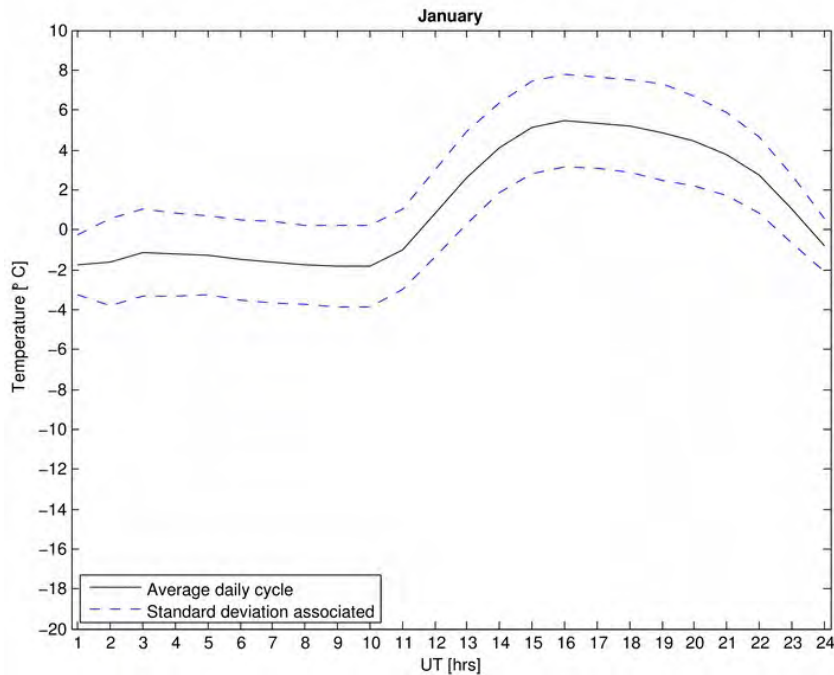
- altitude 5,038 to 5041 m
- 300 m radius
- very flat



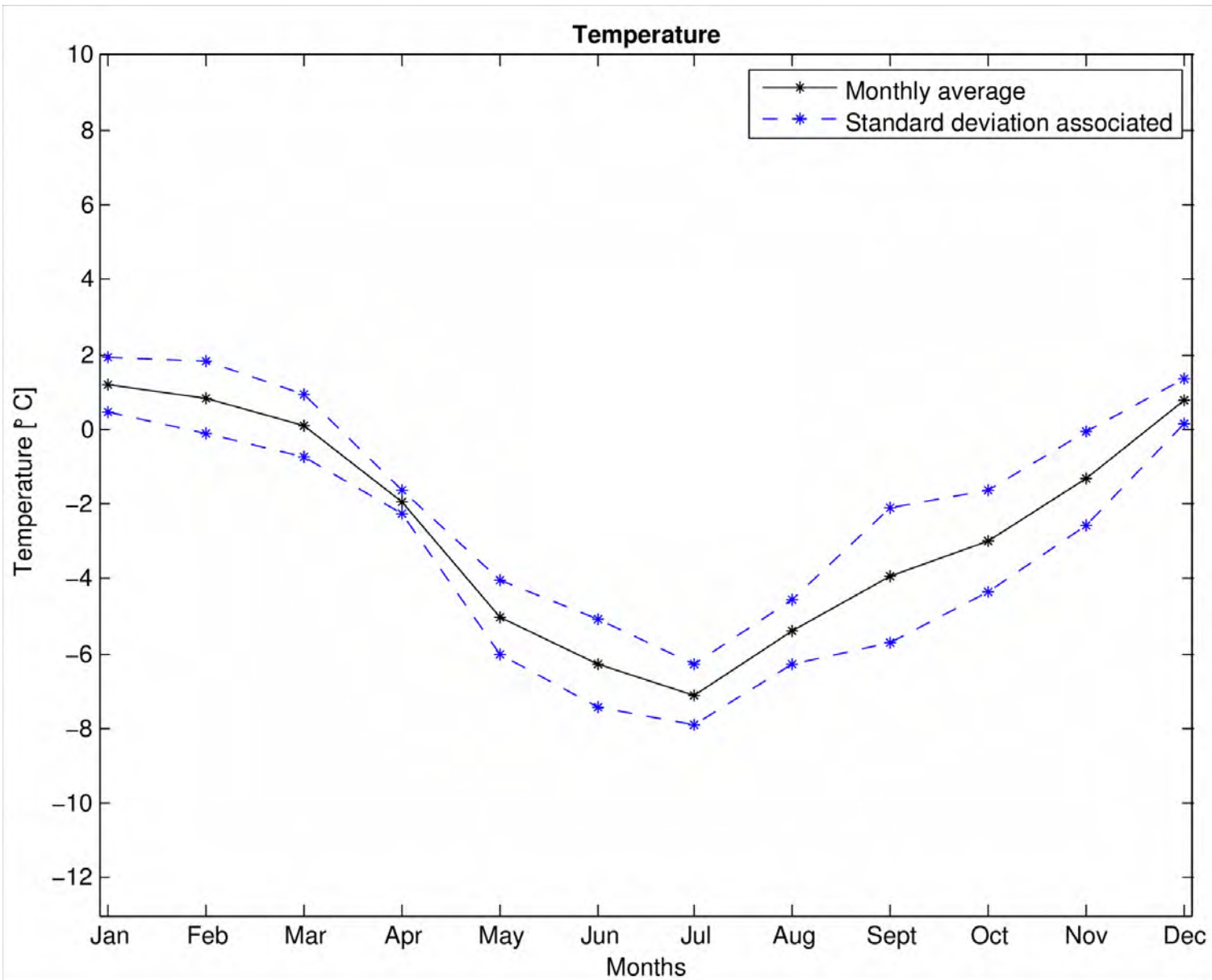
1 km r site near Hwy 27



the Weather is the problem



Biggest problem for several months



ALMA Strategy

- build the antennas at 3,000 OSF site
- truck them up to their final position
- Do the same for HAWC South but at the lower altitude?
- Recommended to us: make it under ESO or NRAO to save a lot of effort in the importation of equipment

Conclusions

- The ALMA site looks very favourable