



ALMA OSF-SCO Optical Infrastructure

The Atacama Large Millimeter/submillimeter Array (ALMA), an international astronomy facility, is a partnership among Europe, North America and East Asia in cooperation with the Republic of Chile.



Background

ALMA OSF-SCO currently uses a 100Mbps Microwave (MW) link.

The projected needs for full array operations is 300Mbps. Some recent developments may even move upward such value.

Considering:

- Microwave OPEX scales more or less linearly with capacity.
- Use of optical paths - dedicated Lambda or, even better, dedicated fiber(s) could cover current and long term needs;
- The EVALSO FP7 project, where ESO was one of the members, has available capacity between Antofagasta and Vitacura ESO Campus

After the feasibility study(2011), the ALMA Board approved (Apr2012) the implementation of ...



Goals

.... a communication infrastructure between the OSF site and the JAO offices in Santiago capable of:

- Providing a long term (>15 years) solution infrastructure
- Coping with projected operations needs (>1Gbps) and scale further
- Minimize latency between the end sites
- Being available as soon as the array is completed (end 2013)
- Having reasonable upfront CAPEX and very low future OPEX
- If cost effective, taking advantage of the existing EVALSO capacity



OSF-ALMA Santiago connectivity

Goals:

- performance: at least a 2.5Gbps LAMBDA, low latency
- schedule: Delivery within 2013/Q4
- scalability: long term (>15 years) solution infrastructure
- sustainability: very low future OPEX

The solution is broken down into:

OSF-ANTOFAGASTA (to be procured)

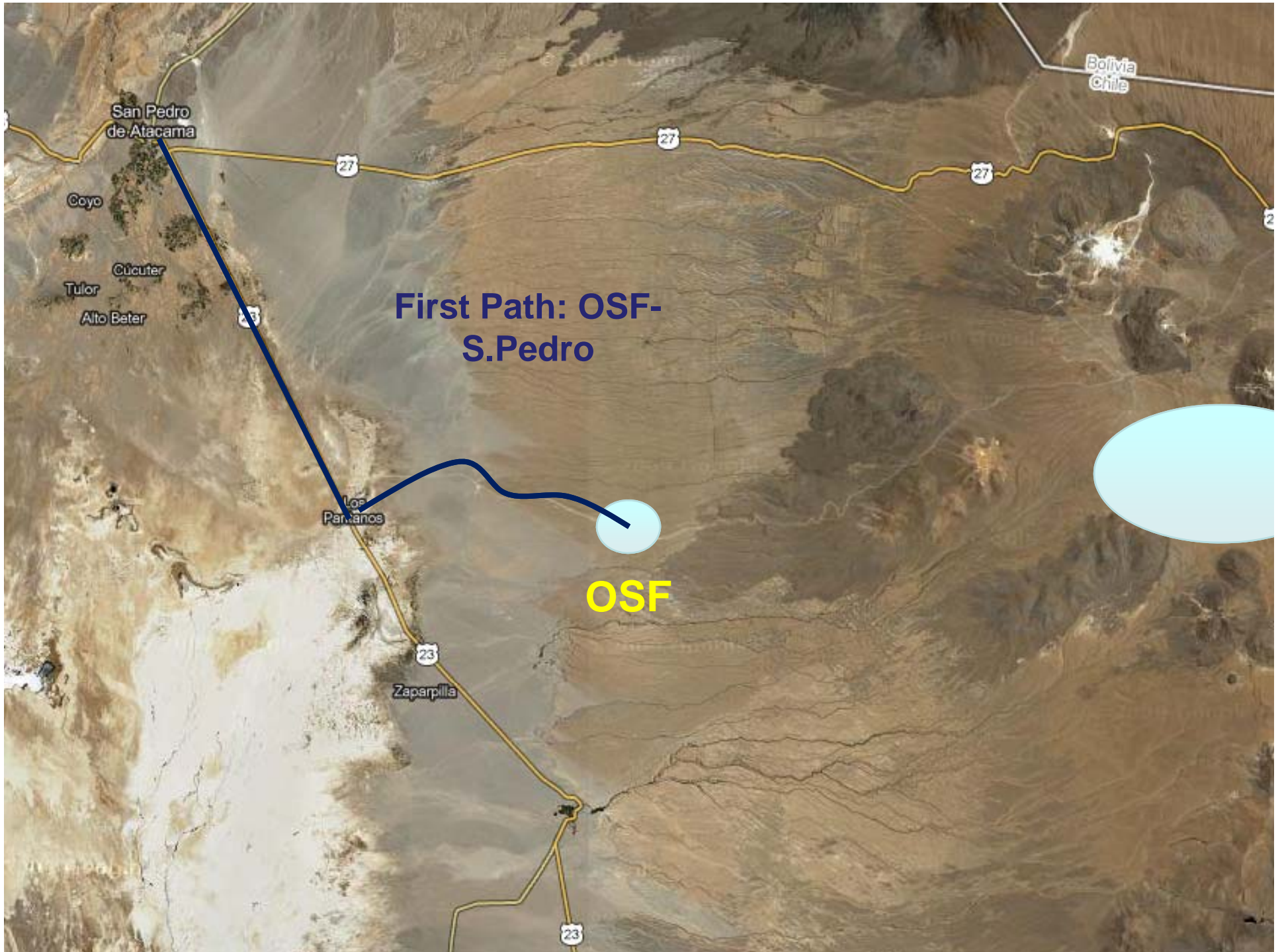
Item1: OSF - SAN PEDRO

Item2: SAN PEDRO - CALAMA

Item3: CALAMA - ANTOFAGASTA

ANTOFAGASTA – SCO (Santiago/Vitacura) using the existing academic network (REUNA on EVALSO)

DWDM equipment to handle the transmission



**First Path: OSF-
S.Pedro**

OSF





OSF-ANTOFAGASTA Optical Path: Project Timeline

- ✓ Feasibility study completed (2011)
- ✓ Project Plan completed (March 2012)
- ✓ ALMA Board approved the recommendation (Apr 2012)
- ✓ Invitation for Bid launched (May 08)
- ✓ Offers received (mid-July)

>>> we are in the negotiation phase <<<

Contract(s) expected for end September

Delivery expected for end of 2013



Many thanks for your attention, and for any questions feel free to contact me.

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