



Site Visit Report – Tenerife & La Palma

17th July to 23rd July 2017

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1 Introduction

Members of the INFRA team based in Heidelberg conducted a 5 day visit to the islands of Tenerife and La Palma between the 17th and 21st July 2017 primarily to present development plans for the LST and MST for ORM to the Cabildo and the Garafia. Prior to this a series of Network and Technical meetings were conducted with the IAC and telescope team leaders to finalise two power point presentations that would provide the basis of the meeting with the Cabildo and Garafia.

The Cabildo is the governing and administrative body of the Island of La Palma based at Santa Cruz and is responsible for policy forming and decision making. The Garafia is a municipality with its town council building at Santo Domingo. The municipality includes the area of the ORM and is responsible for the granting of building permits.

The INFRA team for the visit were supported throughout by their colleagues at the IAC and the LST and MST teams. The itinerary for the visit is attached as Appendix 1.

Meetings had been pre-arranged with the Cabildo and Garafia with the aim of:

- Communicating at the highest possible level with elected members and officials whilst updating them on the status of the project and to develop a working relationship with them.
- Gaining an understanding on the Planning Process, new Land Laws and procedures
- Gaining initial feedback on the project from the Cabildo and Garafia
- Promotion of the CTA project from an economical and scientific aspect.
- Discussing the possibility of delivering community engagement events.
- Meeting with SUCOSIP

2 Meetings in Tenerife

2.1 Monday 17th and Tuesday 18th July 2017 Tenerife - IAC Headquarters

The PowerPoint presentations had been prepared by David Bristow and Carla Crovari. These were shown to attendees the Network and Technical meetings for comment and discussion before finalising their content.

Attendees – Most meetings

Juan Cortina FAE (JC) LST	Daniel Mazin ICRR (DM) LST	Javier Herrera Harente (JHH) LST	Marcus Garczarczyk DESY (MG)
Ueli Strauman CTA PO (US)	Monica Vazquet Arosta (MVA)		Pepa Becerra
Carlos Martin Galan IAC IT (CGM)	Carla Crovari CTA PO (CC)	Ramon Garcia Lopez IAC	Stephen Brown CTA PO (SB)
David Bristow CTA PO (DB)			

Attendees – Part meetings

Rafael Rebolo IAC Director (RR)	Jorge Goya Computing and Networks (JG)	Josefa Becerra	Carlos Martin Galan IAC IT (CGM)
Thomas Schweizer (LST)			

The following is a summary of the meeting and the main points of discussion and agreement

- Meeting Opened by DB and confirmed agenda for the week and today and tomorrow
- CC displayed the first power point presentation “The New Generation Instrument for the Great Discoveries in High Energy Astrophysics” – a short summary of the CTA project, its global scientific and global significance and the local social and economic benefits. Various amendments were made to the presentation arising from the discussions.

Meeting for connection to WAN availability in ORM.

J. Goya explained the options available for the WAN access service:

- Internet access, 1 Gbps. Bandwidth can also be higher. This is the kind of service Magic currently has, being the biggest consumer in ORM with 2 Gbps when data is transferred. “Lambda service”: a dedicated point to point link, bandwidth: 10 Gbps. This option requires that the site that receives the data is defined. This service can have no cost inside Spain (for WAN transport, last miles would always have a cost) with red IRIS (except in Barcelona), and can be provided to other points in Europe but with a cost.

Ueli S. clarified that CTA requires access to WAN at 1 Gps bandwidth, as indicated in the Hosting agreement between IAC and CTA.

Jorge G. also explained that for the physical connection from CTA to the service connection point to the WAN network, in the Residence building from IAC, currently there are 8 fibers available (out of 128 pairs already installed for ORM).

- Discussion regarding the location of the Science Data Management Centre and the stages of data analysis and storage – JG/CC –
- Carla C commented that the location for the Datacenter that will receive the scientific data from the site in La Palma is not defined yet.

DB displayed the second power point presentation Design and Construction Strategy. This introduced the concept of a Short Project LST2 to 4 and MST 3 and 15. The following is summary of discussions

- The CTA PO is to procure and pay for the services of an Architect whom will produce a tender package and will procure the services of a second Architect that will design and detail the Short Project (Phase 1) for the Civil Engineering design, specification and supervision of works and the co-ordination activities with other disciplines. The Ecological Impact Statement and the new Helipad would be included in the Short Project scope of works. The Helipad position to be agreed and paid for by IAC. The responsibility for the payment of the fee for the services of the second Architect was not agreed during this discussion
- The Electrical package will be relatively small as part of the Power/Data/Network is being provided as Japanese supplied packaged solution. . It was agreed that LST team will procure the electrical project for the installation of the Transformer, Diesel Generator and ATS that will supply the LST prototype, the Container with the Datacenter, and the Container for Commissioning. For the LST prototype stage.
- The CTA PO is to procure the Mechanical package with the bid documents being provided by IAC for LST1 as a basis for the process for the LST2 to 4
- A RIBA stage 3 study (Phase 2) would be commissioned by CTA PO for the remainder of the site development.
- It was agreed not to build MST 15 in Phase 1 – short project, as would not be acceptable to have a base without a telescope and the issues this may cause with the Cabildo (RR)
- It was agreed to move the Detailed design of the Technical Building into the Phase 2 as there were solutions planned around LSTs with regards to power, data and network that do not depend on the building. It may be possible to develop the building to a detailed design separately – Phase 1.5.
- FEDER (European Regional Development Fund) issues require that the Technical Building and as many MSTs are built as possible before the end of 2020.
- The proposed access over the Barranco (a protected ecological corridor) is a sensitive issue with the Cabildo and Garafia but is essential to link the southern MSTs. An alternative access from the GTC may be possible with agreement but would result in a longer access and greater cable lengths
- The aim is to have the Short Project bids available for tender during November 2017 with a tender period of 4 months due to national procurement rules.
- The first tranche of FEDER funding of €23m will be forwarded to IAC in October 2017. The process may be commenced before this date but awards cannot be made until funds are in place with the IAC
- A license fee of €260k is due to the Garafia for the Mechanical structure of the LST1 telescope. This has been partially paid with an outstanding amount of €130k due by 5th August 2017. An appeal has been lodged with Garafia for a reduction of €100k on the basis that the structure is classed as scientific instrumentation and therefore under the rules does not attract a fee.
- IAC to clarify with EU on use of FEDER monies for payment of the license.

Discussion on the new law defining use of land in the Canaries with the main points being

- The new law for land use (ley del suelo) coming into use on the 1st September is a regulation that increases the powers of the Municipality of the Garafia in rural planning and reduces the control of the Cabildo. See

<http://www.gobiernodecanarias.org/boc/2017/138/001.html>

- The new law classifies land for scientific instrumentation as being rural meaning that the license tax will reduce from 10% to 5%

- The license application will only be made to Garafia.
- The Garafia will be required to apply for an environmental permission to a new Environmental Agency that is still to be defined and formed.
- A new development plan (plan de ordenacion municipal) for the Garafia is due to be adopted by the end of 2017. This for the first time will set down areas of the ORM that can be developed and areas of special interest that needs to be protected. It is anticipated that the Development Plan may simplify the granting of future licenses for the telescopes as the land uses will be well defined within the Plan reducing the need for prolonged discussions and negotiations between the authorities.

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 During the morning, a break was taken to have a conducted tour of the IAC scientific and technical facility. CTA wishes to thank the IAC for their hospitality.

During Tuesday morning, a meeting was held with Casiana Munoz Tunon head of SUCOSIP (IAC Sky Quality Group), to discuss the All Sky camera.

- Casiana was well aware of the CTA development.
- Confirmed that the CTA project had no effect on the existing weather stations.
- Stated that a standard 3m high weather station mast and instrument configuration was being adopted for consistency of results. That where possible CTA to adopt the same standard but stressed this was a suggestion only.
- Lasers were fired very infrequently at the moment and SUCOSIP informed in advance by observatories.
- SUCOSIP are introducing a Laser Traffic Control System that would be operated by the Scientific Community. A Laser Working Group (LWG) is in place to define protocols and scientific need for firing of lasers
- A CTA PO member is required for the SUCOSIP Committee and for the LWG. This can be a single person or one for each position.
- Marcus Gaug to attend SUCOSIP meeting 13-15 November.

3 Meetings in La Palma

3.1 Tuesday AM 18th July 2017 La-Palma – CALP Headquarters

Attendees

Juan Cortina FAE (JC) LST	Daniel Mazin ICRR (DM) LST	Ramon Garcia Lopez IAC	Marcus Garczarczyk DESY (MG)
Ueli Strauman CTA PO (US)	Juan Carlos Peres ORM Administrator	Jorge Gmelch Ramos IAC Head of Maintenance	Stephen Brown CTA PO (SB)
David Bristow CTA PO (DB)	Carla Crovari CTA PO (CC)		

During Tuesday afternoon a meeting was held to finalise the two presentations. Minor amendments were made to presentations following discussions.

Much of the discussion were centered around the Baranco access, service access points and the need to produce an Environmental Report.

It was agreed for the two presentations to be delivered in Spanish.

4 Meeting with the Cabildo

4.1 Wednesday 19th July 09.00hrs -11.00hrs

Attendees

Juan Cortina FAE (JC) LST	Daniel Mazin ICRR (DM) LST	Gonzalo Pascual Councillor for Planning Cabildo De La Palma	Marcus Garczarczyk DESY (MG)
Ueli Strauman CTA PO (US)	Juan Carlos Peres ORM Administrator	Ramon Garcia Lopez IAC	Stephen Brown CTA PO (SB)
David Bristow CTA PO (DB)	Carla Crovari CTA PO (CC)	Jorge Gmelch Ramos ORM Head of Maintenance (JG)	Jose Carlos Peres Estudio AT3 – Architects LST1
Diego Ayut- Technical Officer Cabildo De La Palma	Vina Barreto – Technical Officer Cabildo De La Palma		

The CTA were introduced to the Council President prior to the meeting although he did not attend the meeting.

Ueli Straumen opened the meeting by thanking the Cabildo for the opportunity for the CTA PO to present to Council officials the full project and the phasing for the CTA observatory planned for the ORM.

Following each of the power points presentations various questions were raised by the two Technical Officers that were answered By Juan Carlos Perez and Ramon Garcia Lopez

Discussions were held regarding:

- The science of the CTA
- Phasing of the scheme
- The Barranco crossing and its form and character

- Timescales for the project
- The impact of the new procedural issues and responsibilities – see page 5 above.
- The need for an Environmental Impact statement – New Environmental agency being formed to deal with these – but not yet in place.
- Conversation with Estudio AT3 regarding elevation of the LSTs and its general dimensions.
- Technical Officers required positions of other scientific equipment - Lidar and weather stations etc identified on the scheme drawings.
- Confirmed that new Helipad would be built at a location to be decided.

Meeting was closed by Ueli Strauman giving thanks to the Cabildo. This was reciprocated by Gonzalo Pascual.

Note: The Garafia was invited to this meeting but failed to attend. The decision was made to arrange a meeting directly with them for Thursday 20 July

5 Meeting with Estudio AT3-Architects

5.1 Wednesday 19th July PM

Attendees

Juan Cortina FAE) LST (JC)	Javier Herrera Harente (JHH) LST	David Bristow CTA PO (DB)	Stephen Brown CTA PO (SB)
Carla Crovari CTA PO (CC)	Jose Carlos Peres Estudio AT3 – Architects LST1	Plus one more from AT£	

The purpose of the meeting was to discuss possible procurement options for the short project and progress on the repairs of LST1 prototype foundation.

- The short project could be procured through an Architect to include the Architectural and Mechanical design and supervision of the construction works. Contract to include Environmental Study.
- Estudio AT3 could not act to procure the work as this would preclude them for the design and supervision of the short project contract.
- Permits from the Garafia could not be applied for before approval of the Environmental Study from the new government department that is to be set up to consider such applications.
- The Architects showed parts of the report on the defective concrete to LST1 and also photographs of the core sample indicating full penetration of the repair system extending the full crack length. It understood that the repair system is approved by SIKA and is being paid for by the Contractor that carried out the LST1 construction works
- Architects to provide full report on repairs on its completion.
- CTA would require full report prior the acceptance of the foundation and prior to the completion of the mechanical construction works.

After the meeting the schedule for short project was discussed and the following was thought to be possible:

Scope of works prepared for ITT – **November 2107**
Tender opening – **Feb 2018**
Appraisal process – **Mar 2018**
Receipt of completed Environmental Study - **May 2018**
Final scheme design drawings and specifications – **Nov 2018**
Approvals – Cabildo- **Apr 2019**
Commence construction work – **Apr 2019**
First Telescope – **Apr 2020**

MST would possible given build priority.

6 Meeting with the Garafia

6.1 Thursday 20th July 12.00hrs-13.40hrs

Attendees

Juan Cortina FAE) LST (JC)	Daniel Mazin ICRR LST(DM)	Yeray Rodriguez- Garafia - Lieutenant Mayor(YR)	Stephen Brown CTA PO (SB)
Ueli Strauman CTA PO (US)	Juan Carlos Peres ORM Administrator (JCP)	Jorge Gmelch Ramos ORM Head of Maintenance (JGR)	Glemis Rodriguez – Garafia --Councilor for Culture (GR)
David Bristow CTA PO (DB)	Carla Crovari CTA PO (CC)	Miguel Quesada- Garafia - Municipal Technician (MQ)	

Following each of the power points presentations various questions were raised by the two Technical Officers that were answered By Juan Carlos Perez

Discussions were held regarding:

- MQ raised the question of MST 4 that was placed in the area set aside for the potential TMT working area. JCP explained the timescales for the construction MST4 which would be well after the construction of the TMT and therefore would not be a problem.
- MQ raised the issue of the access over the Baranco. JCP and JC explained the reasons behind this and the form that it would take. It was also stated an alternative route to the MSTs from the road adjacent to the GTC may be possible but would result in a greater road and cable infrastructure. MQ was insistent that there should not be an access over the Baranco. Shortly after MQ appeared to have some constraint on time and abruptly left the meeting at 13.00hrs
- US continued discussions directly to YR (whom understood English) regarding the CTA delivering of community outreach projects. This was received very positively by YR whom stated that there was a great interest in the community for Astro Physics and the observatories. The IAC already hold annual events for the Municipality of the Garafia and around the island
- It was suggested that the CTA could work with the school (3-12 year olds) and also with older students.
- It was agreed to that the first outreach project could be delivered during the November Consortium meeting. CTA to liaise with GR

The CTA accepted an invitation to visit the casa de la culture that was conducted by Glemis Rodriguez.