

===== **Tianlai teleconf (8 January 2015) summary** =====

Attendance: NAOC , Fermilab, UW, LAL, Obs. Paris, IRFU-SPP
NAOC: Xuelei Chen, Fengquan WU + other NAOC colleagues
UW (Wisconsin) : Le Zhang
Fermilab: A. Stebbins
Obs. Paris: J.M. Martin, Obs. Nançay: S. Torchinsky
IRFU: C. Magneville
LAL: R. Ansari, J.E. Campagne, Qizhi Huang

This meeting web page and documents:
<https://indico.lal.in2p3.fr/event/2699/>
(modification pw = tian21cmtc)

A- Tianlai project timeline in 2015

2015 is the last year of funding of the initial stage of Tianlai projet in China
====> need to achieve goals - making sky maps, in order to secure continuous support for the project.

Project time-line during 2015:

- A.1) Reflector construction nearly finished, 6 feeds are already installed
- A.2) Despite the winter time, some construction activities will be continuing on site during the next 2-3 months : fusing/connecting optical fibers, doing some electrical checks, testing a complete electronic system (from feed to digitizer) , including all cable/fiber lengths (see X. Chen slides for more detail)
- A.3) March-April 2015 : geometric measurement on site (total station/laser ranging) - reflector surface adjustment - feed position determination
- A.4) April 2015 : 16-dish array installation on site
- A.5) May-July 2015 : feed/LNA mass production , installation of feeds on the antenna, full deployment of the electronic system on site
- A.6) June-July 2015 : Checking complete analog chain for all channels, checking digitized chain for all channels observing fringes from strong source transits ,
- A.7) Aug-Sept 2015 : checking output from correlator, start instrument calibration
Possible trip / mini-workshop on site for collaboration members
- A.8) Oct-Dec: long duration (at least few hours/day) sky observation in transit mode
Perform calibration , make sky maps - iterate

B- Pending questions / Action list ...

- B.1/ Temperature control of the analog optical transmitter box : probably NOT urgent , might be needed later
- B.2/ managing the instrument configuration (tracking all changes / part replacement ...) using a data base : NOT urgent, would be needed once in 'standard' operation mode
- B.3/ Feed arrangement on cylinders :
====> Action : Need to define the initial feed arrangement by May 2015 (regular/irregular, same or not on all cylinders, feed spacing ...)
- B.4/ dish-array configuration & obs. strategy
need to choose between celestial polar cap observation (deep observation on small patch of sky), see A. Stebbins slides) or zenith observations.
The dishes are movable - so the configuration could be changed
====> Action : need to define the dish-array configuration(s) - even if decide to start using a simple more or less regular configuration- Discussion for the next teleconf
- B.5/ Calibration strategy (see X. Chen's slides)
internal calibration using noise diodes / emitters - define the setup
possibility to use an artificial source on a light unmanned aerial vehicle UAV
use of single bright sources , use of pulsars (to be studied further)
Qizhi Huang could work on establishing a list of bright point sources and pulsars to instrument calibration
====> Action : define a detailed calibration strategy & expected input/output of each step

J.M.Martin suggests to do Tsys measurement on feeds, by measuring feed signal measured on sky without reflectors (cold source, ~ 30 K) and feed blocked by foam (hot source ~ 300 K)

====> **JMM will write ~ 1-2 pages on this**

B.6/ Data acquisition, on site processing

- require Institute of automation to provide raw mode acquisition (wave-form data dump to disk) for debugging/initial tests

- Foresee some computing resources on site / at least for the test phases

====> **Action: Define what is needed to be recorded by the acquisition system, discuss with Institute of automation so that the recorder data in the different modes (RAW-waveform, visibilities ...) can then be analyzed offline**

B.7/ Data management / processing

The instrument will quickly produce large amount of data - and a data management/data access facility will be needed soon

====> **Action: Albert (Stebbins) will check if Fermilab can provide some support for this**

C- AOB ...

- Next meeting : thursday, 12 february 2015

- prepare the discussions for the next meeting (see above)