

The status of RAEGE

J. A. López Fernández ¹, P. de Vicente ¹ S. García Espada ¹, L. Santos ²

1) Instituto Geográfico Nacional (IGN)

2) Gobierno Regional de Azores (GRA)



RAEGE

RAEGE = Red Atlantica de Estaciones Geodinámicas y espaciales
= Atlantic Network of Geodynamical & Space Stations

4 Space geodetic stations:

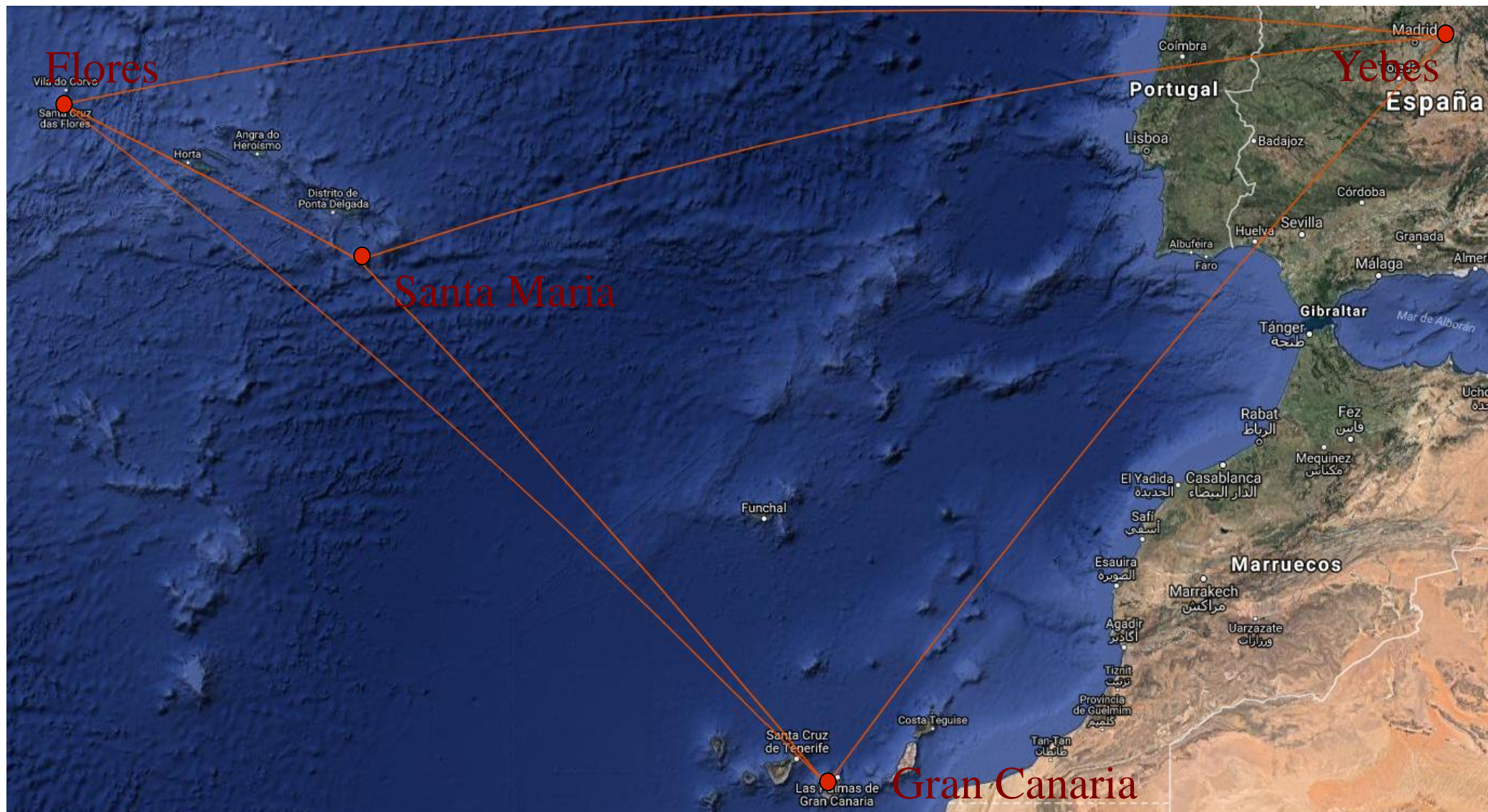
- Yebes
- Santa María (Azores)
- Gran Canaria
- Flores (Azores)

which will be part of **VGOS**

Agreement between IGN and GRA (2012)

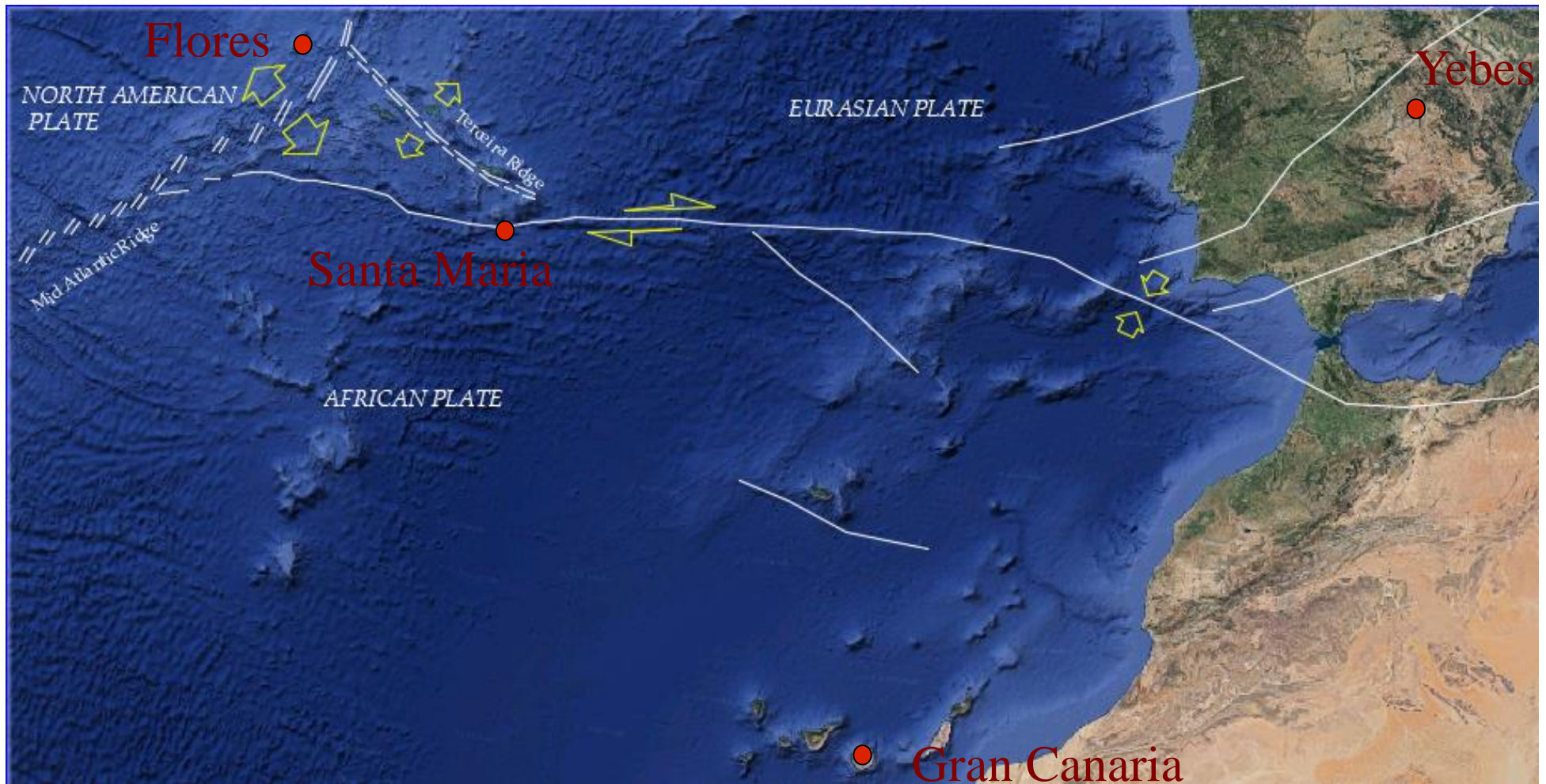
RAEGE

6 baselines: from 600 to 2400 km. (EW, ESW, WSE)



RAEGE

Three plates across RAEGE



Yebes



2013

Yebes RT

One of the **VGOS** and **EU-VGOS** core stations since April 2016

BroadBand 2-14 GHz

It has taken part in VGOS tests in 2016, 2017, 2018 & 2019

- **2016:** 11 VGOS observations
 - 2 x **DBBC2** + 1 **Mark6**
 - 1 **DBBC2** + 2 **RDBGEs** + 1 **Mark6**
- **2017:** 24 VGOS observations
- **2018:** 19 VGOS observations
 - 10 EU-VGOS observations
- **2019:** 5 VGOS + 2 EU VGOS obs.

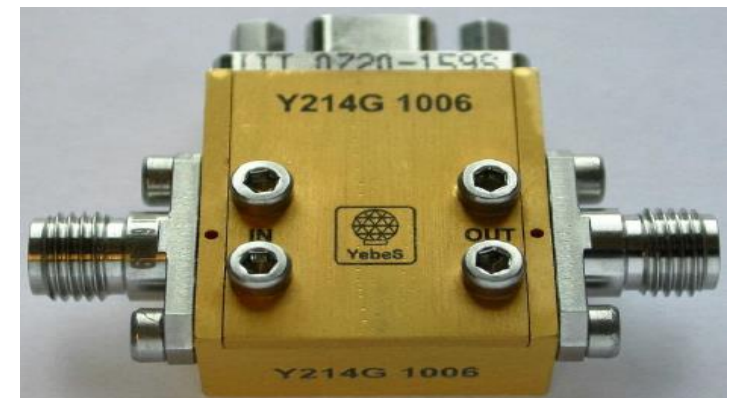
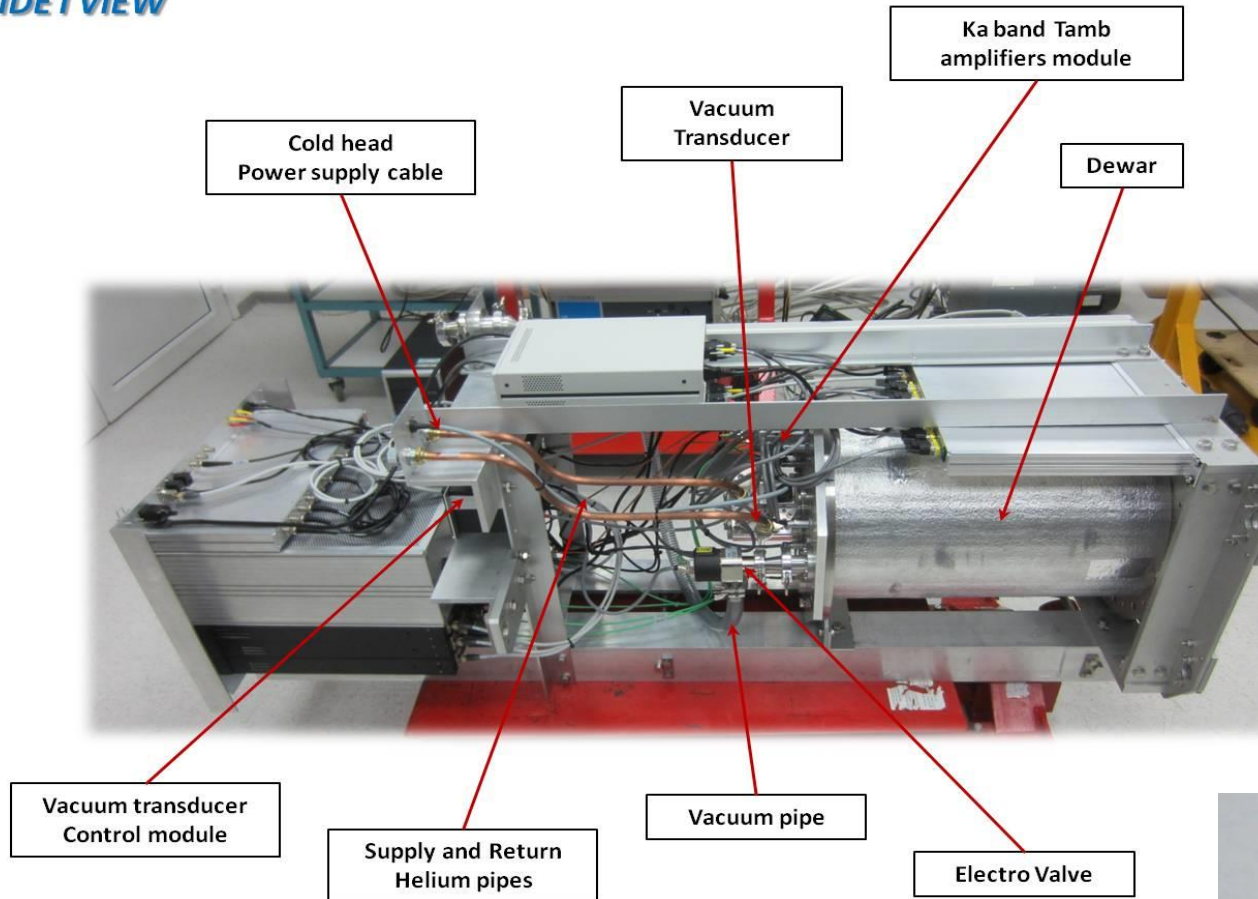
Periodicity: 15 days

- **4 RDBEGs** + 1 **Mark6**

8 Gbps: 8 x 256 MHz

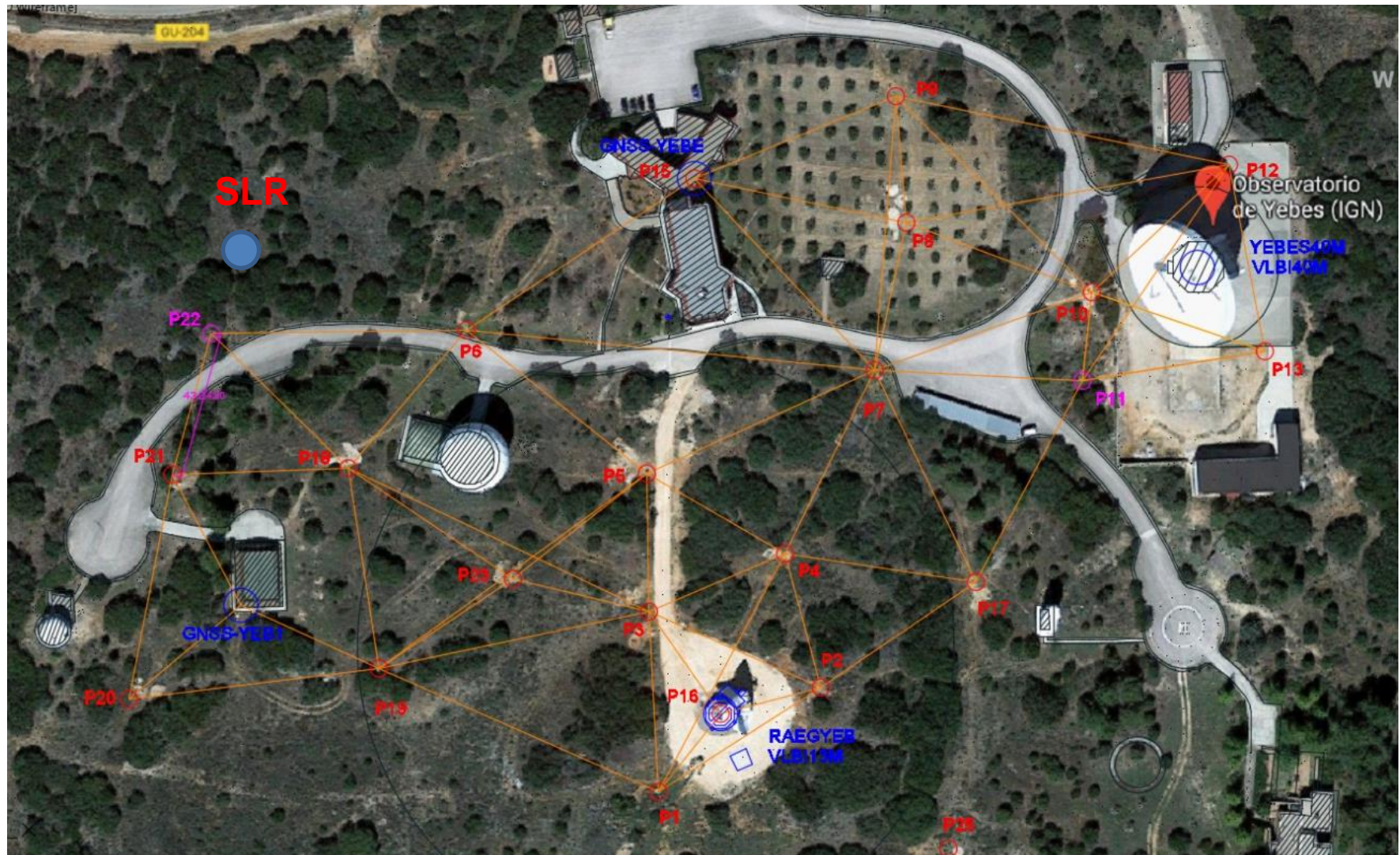
YebeS Developments

SIDE I VIEW



Yeves Core Station GGOS

VLBI; GNSS; SLR, GRAVIMETRY; LOCAL TIE
TDC of IVS



Santa Maria

Rubén Bolaño
Susana García
Luis Santos



Santa Maria



Santa Maria

Tri band receiver: [2.2-2.7] [7.0-9.5] [28-33] GHz

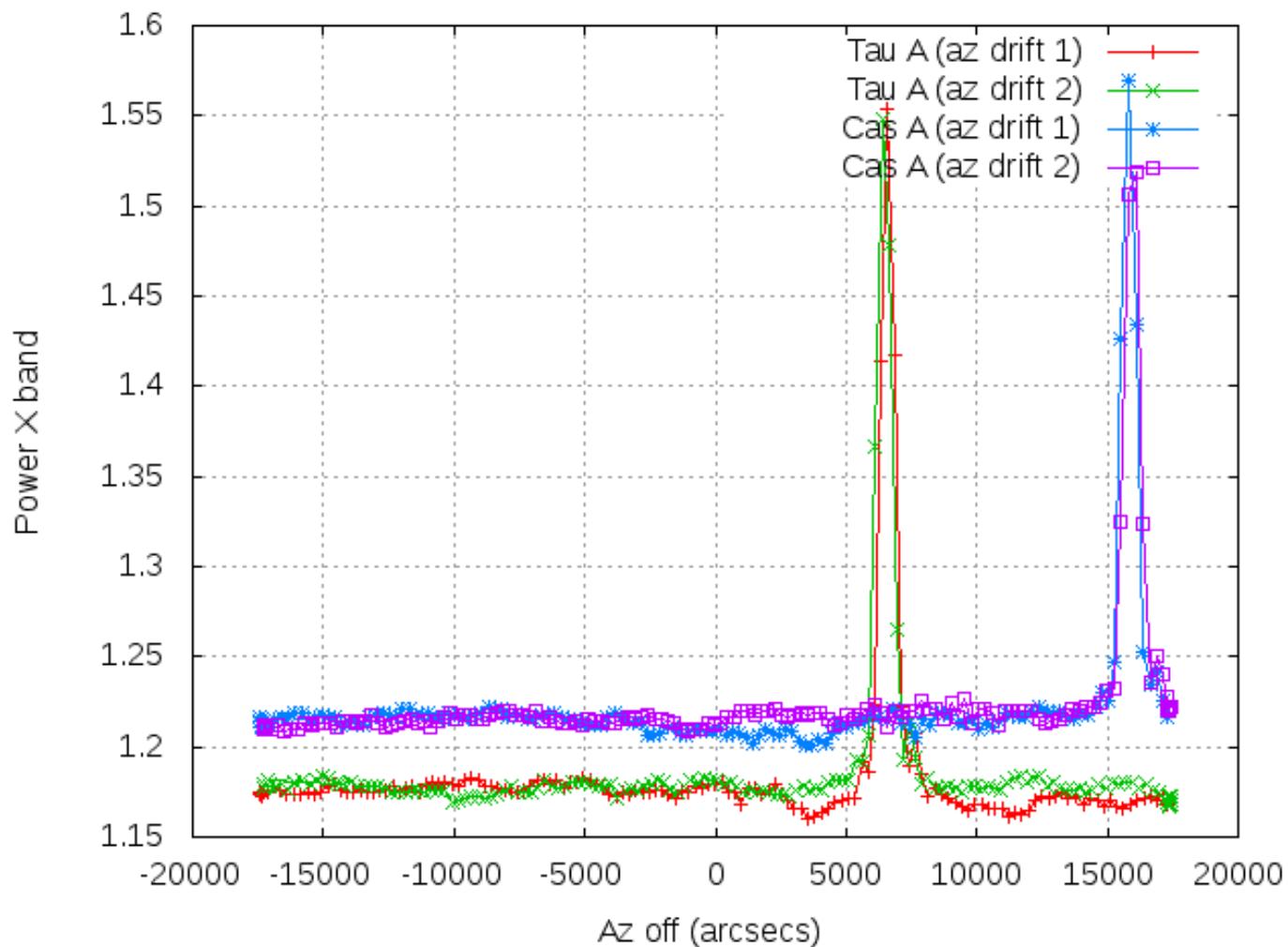
- Compatible with existing legacy (S/X) VLBI
- Provides capability to test the radiotelescope performance
- Available for the first radiotelescope commissioning
- Built at Yebes Labs and similar to Ny Alesund and Ishioka tribands



- DBBC2
- Mark5B+ for recording
- Mark5B+ for transferring
- Limited bandwidth: 80Mbps

Santa Maria

First light: 11 July, 2017



Santa Maria

First fringes at S & X bands: February 2018

[Vex file](#) -- Integration time: 4s -- Start of the integration: 2018y052d11h59m00s0ms

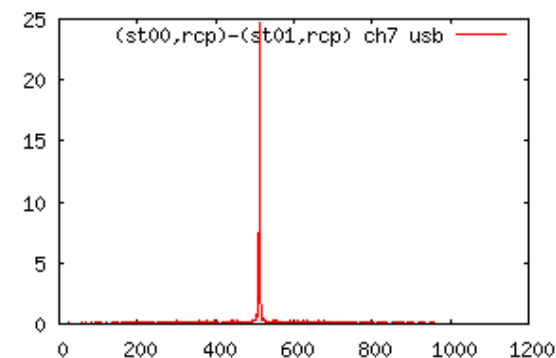
Ys - Sa

Correlated at JIVE

Legacy IVS observations.

Broad band receiver coming in December 2019

FR046	Auto correlations		Cross correlations
	Sa	Ys	Sa-Ys
2225.99MHz, USB, Rcp-Rcp	<u>1</u>	<u>1</u>	<u>10.73 A P</u> offset: 0
2251.99MHz, USB, Rcp-Rcp	<u>1</u>	<u>1</u>	<u>24.18 A P</u> offset: 0
2271.99MHz, USB, Rcp-Rcp	<u>2</u>	<u>2</u>	<u>27.52 A P</u> offset: 0
2301.99MHz, USB, Rcp-Rcp	<u>3</u>	<u>3</u>	<u>40.05 A P</u> offset: 0
2351.99MHz, USB, Rcp-Rcp	<u>4</u>	<u>4</u>	<u>76.25 A P</u> offset: 0
2373.99MHz, USB, Rcp-Rcp	<u>5</u>	<u>5</u>	<u>67.73 A P</u> offset: 0
8212.99MHz, LSB, Rcp-Rcp	<u>6</u>	<u>6</u>	<u>418.9 A P</u> offset: 0
8212.99MHz, USB, Rcp-Rcp	<u>7</u>	<u>7</u>	<u>429.8 A P</u> offset: 0
8262.99MHz, USB, Rcp-Rcp	<u>8</u>	<u>8</u>	<u>450.9 A P</u> offset: 0
8362.99MHz, USB, Rcp-Rcp	<u>8</u>	<u>8</u>	<u>433.7 A P</u> offset: 0
8512.99MHz, USB, Rcp-Rcp	<u>9</u>	<u>9</u>	<u>468.9 A P</u> offset: 0
8732.99MHz, USB, Rcp-Rcp	<u>10</u>	<u>10</u>	<u>327.8 A P</u> offset: 0
8852.99MHz, USB, Rcp-Rcp	<u>11</u>	<u>11</u>	<u>330.8 A P</u> offset: 0
8912.99MHz, USB, Rcp-Rcp	<u>12</u>	<u>12</u>	<u>263.6 A P</u> offset: 0
8932.99MHz, LSB, Rcp-Rcp	<u>13</u>	<u>13</u>	<u>271.4 A P</u> offset: 0
8932.99MHz, USB, Rcp-Rcp	<u>14</u>	<u>14</u>	<u>227.4 A P</u> offset: 0



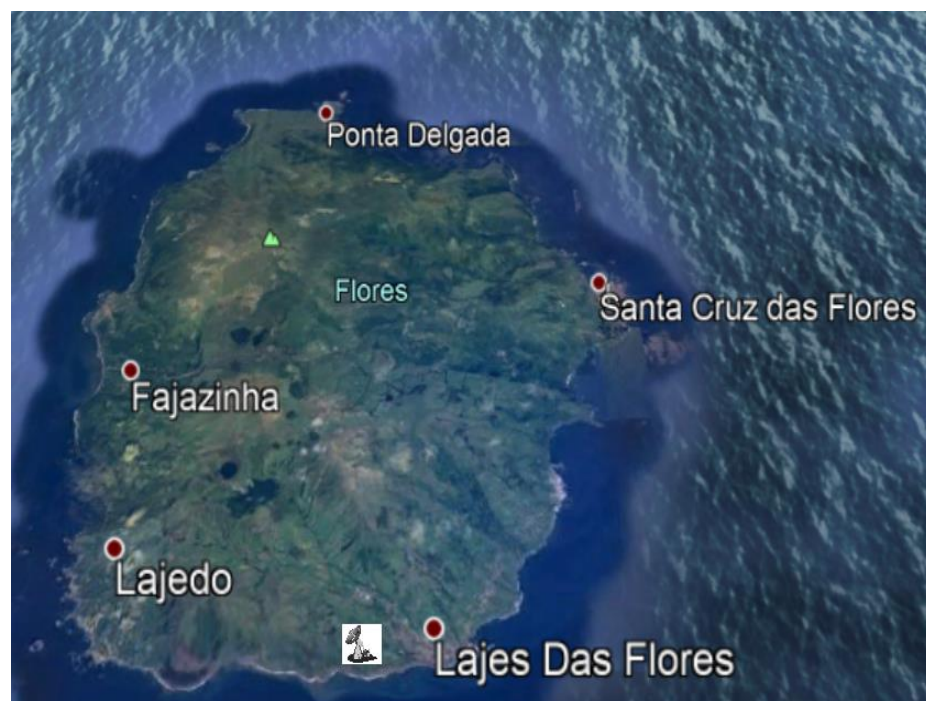
Flores

Administrative paperwork to get the ownership of the terrains

To be totally funded by the Regional Government of Azores (Portugal)

RFI measurements in a potential location were done years ago.

Soil conditions evaluated



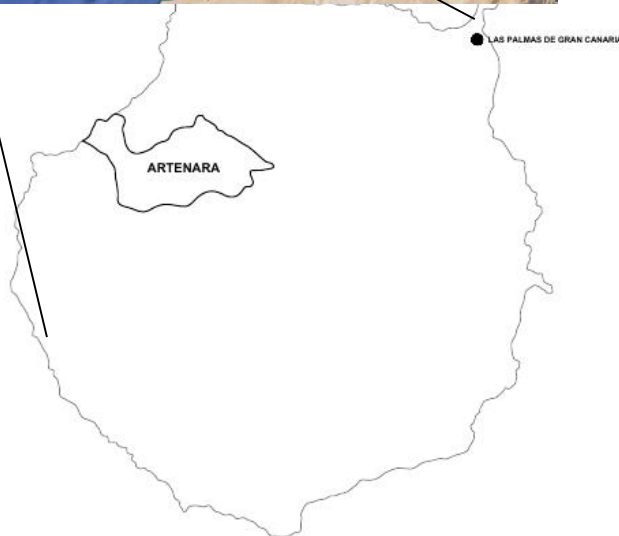
- Start construction 2020
- Operation 2022

Gran Canaria

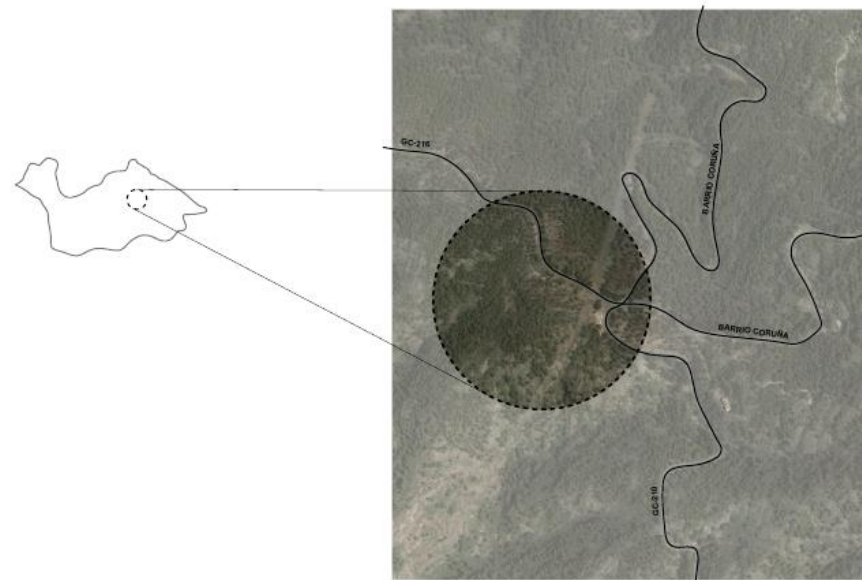
Located in a Natural Protected Area

All delayed by the strict requirements to protect the area

David Cordobés
Itahiza Fernández
Abel Garcia
Víctor Araña
Pepe López



Altitude: 1107 m



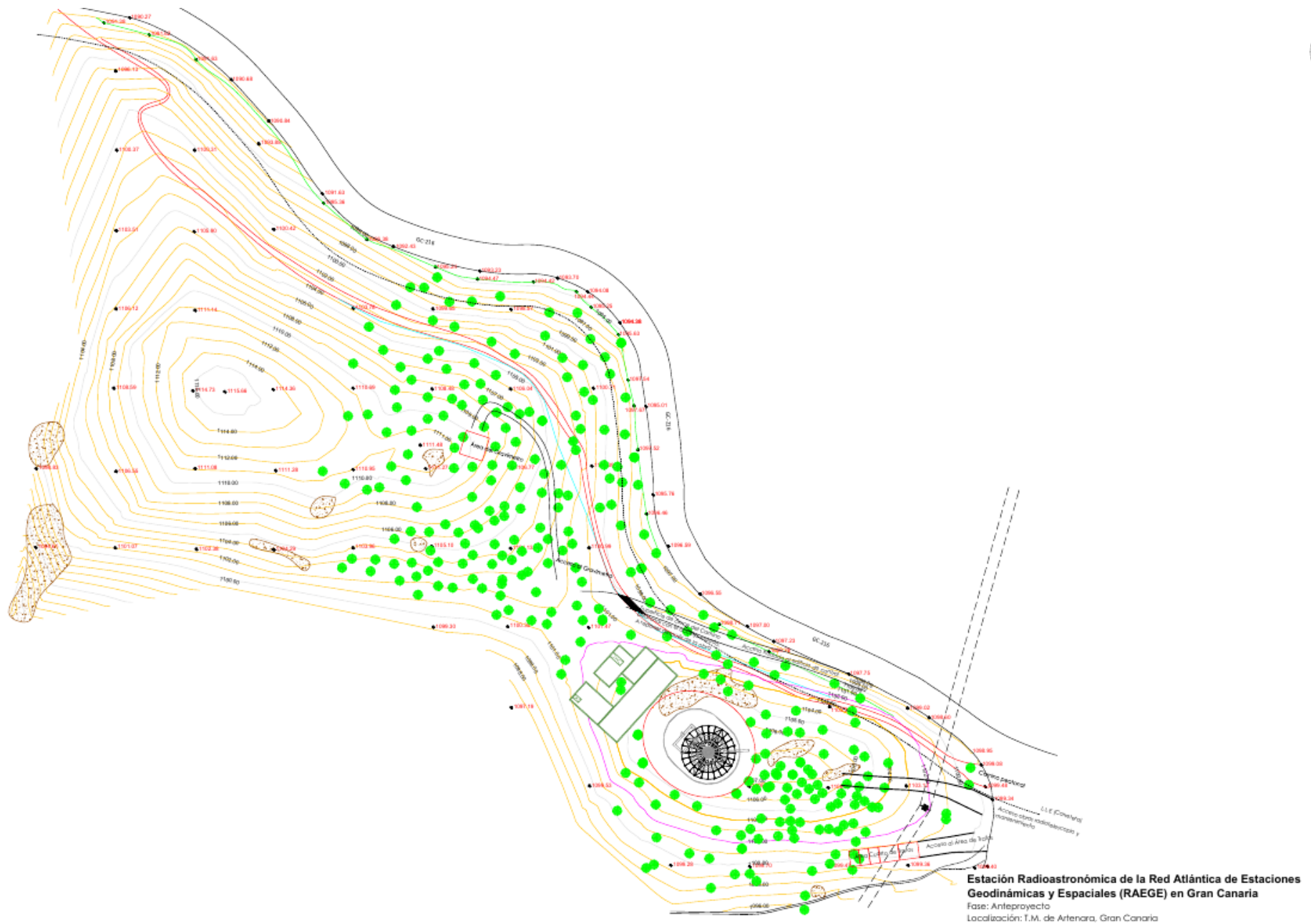
Gran Canaria

- Started 2012 looking for a place at Gran Canaria. Waited for permission 2 years
- Moved to Tenerife. No permission for other 2 years.
- Moved back to Gran Canaria and got the permission in March 2018.

IN GRAN CANARIA

- Antenna is stored in a warehouse at the island.
- Administrative pre-project paperwork started.
- Funds reserved to accomplish all previous civil works.
- Construction is not allowed between March-September
- First civil works might start in September 2019
- Agreement with the University of Las Palmas (Engineering School)

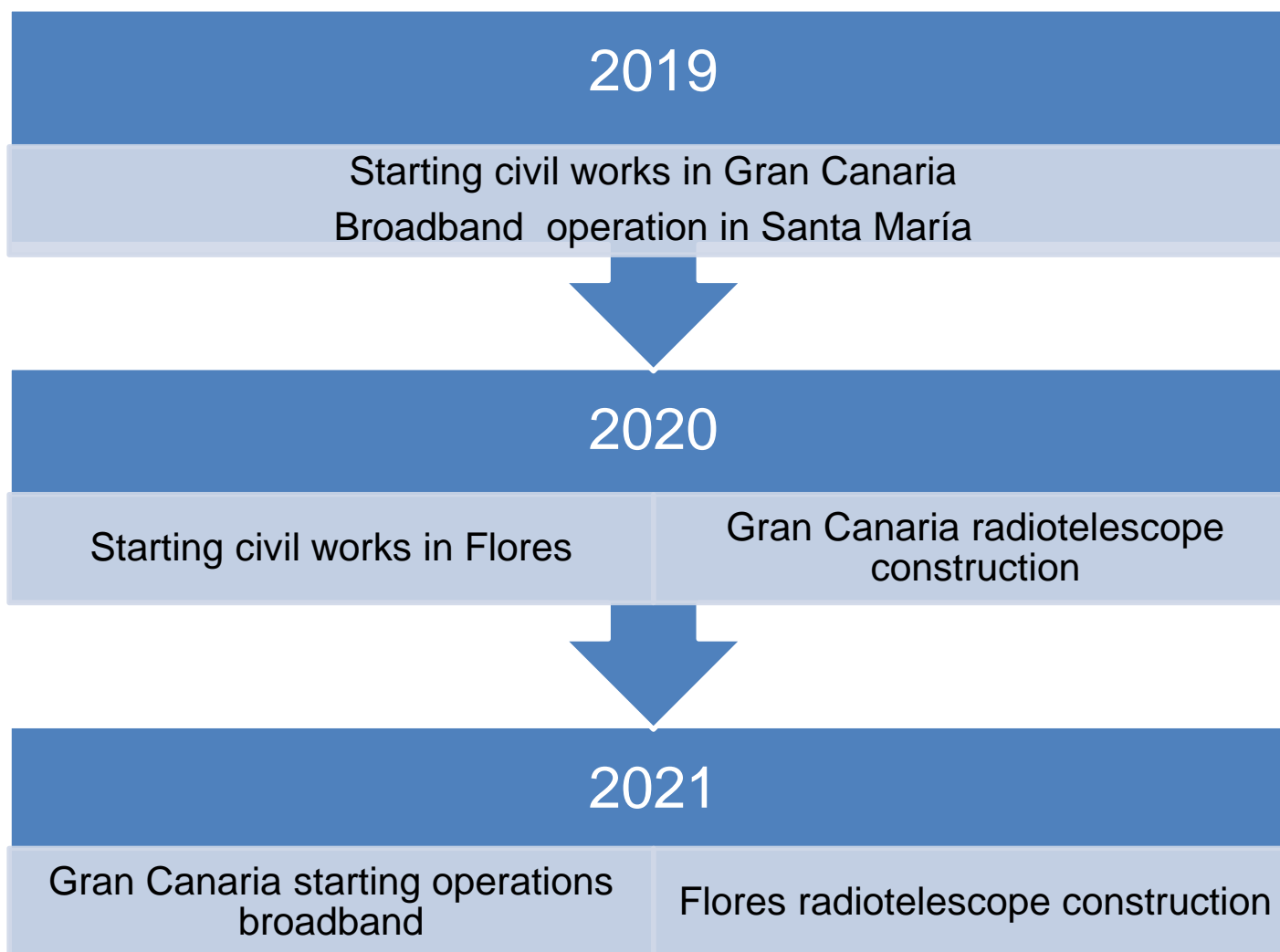
Gran Canaria



Gran Canaria



RAEGE ROADMAP



2022 RAEGE fully operational

¡Muchas Gracias!