Overview of GUTS SLR Station (GMSL)

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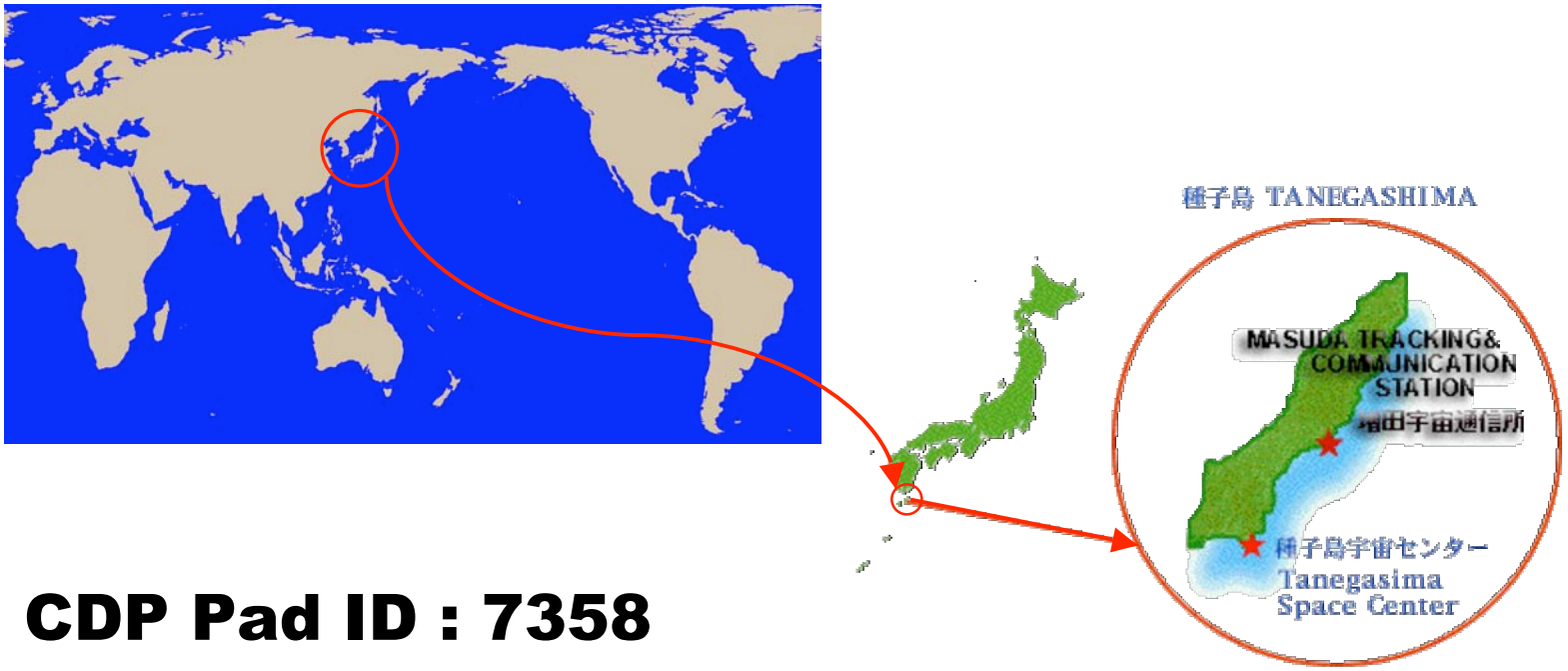
Status and Location

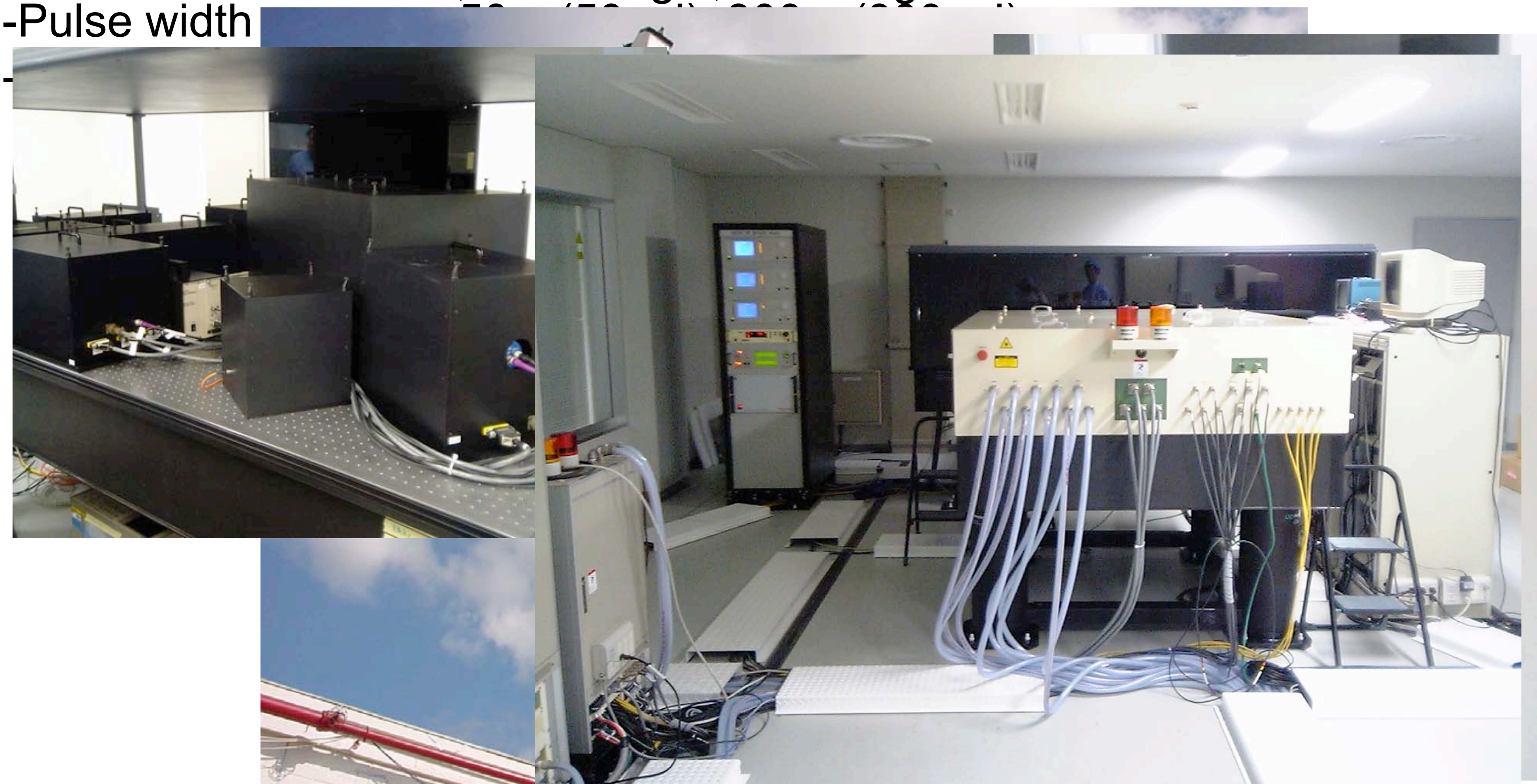
Japan Aerospace Exploration Agency's (JAXA) Satellite Laser Ranging system (**GMSL, Tanegashima**) has been completed in the spring of 2004. We are now under training phase. SLR station is located in Tanegashima Island with the Japanese launch site.



CDP Pad ID : 7358

Specifications of Tanegashima

- Laser ;
  - -Laser Type ; Nd:YAG Mode lock laser (532nm)
  - -Maximum Energy ; Low mode :50mJ for Low to middle Alt.
    High mode:300mJ for Middle to Geosynchronous Alt.
  - -Pulse width
- Telescope System ;
  - -Diameter
  - -Mount ; Az/El
  - -Tracking camera
  - -Max Slew Rate ; Az:25deg/s, El:10deg/s
- Receiver ;
  - -Xmitting/Receiving
  - -Detector Type ; MCP-PMT
  - -Signal Processing
  - -Timing of Flight Observ. ; Event timer



Specifications

Tracking Capabilities:

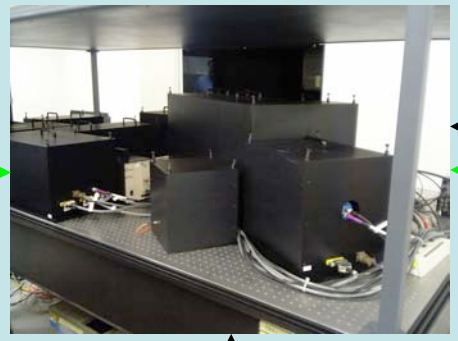
- [x] Very low Alt (<400km)
- [x] Low Alt (400-2000km)
- [x] Lageos
- [x] GLONASS
- [x] Etalon
- [x] GPS
- [x] Geosynchronous
- [ ] Moon

Average values for Satellite:

	Requirements	Test results
Single shot RMS(Lageos) : using low mode Laser(RMS)	<10mm	5mm
Single shot RMS(Geo.Sat): using High mode laser(RMS)	<30mm	17mm(GPS)
Single shot RMS(Target): using High mode laser(RMS)	<3mm	1.73mm

Overview of Equipments

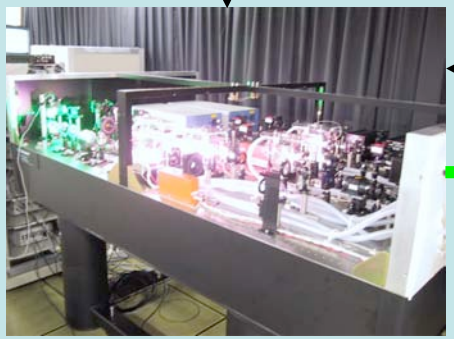
T/R Optics Rack



T/R Electronics Rack

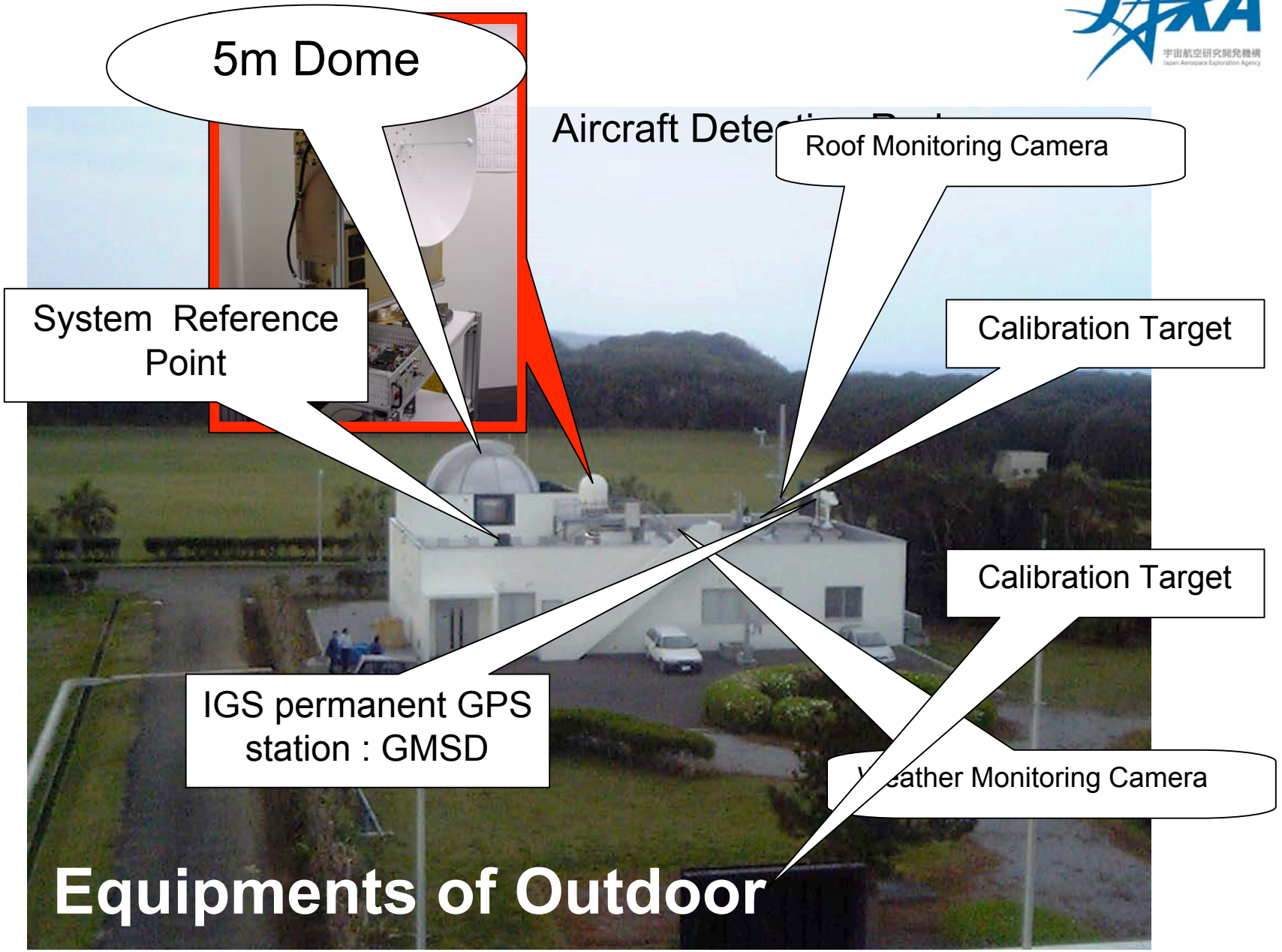
Local Console

@Tanegashima



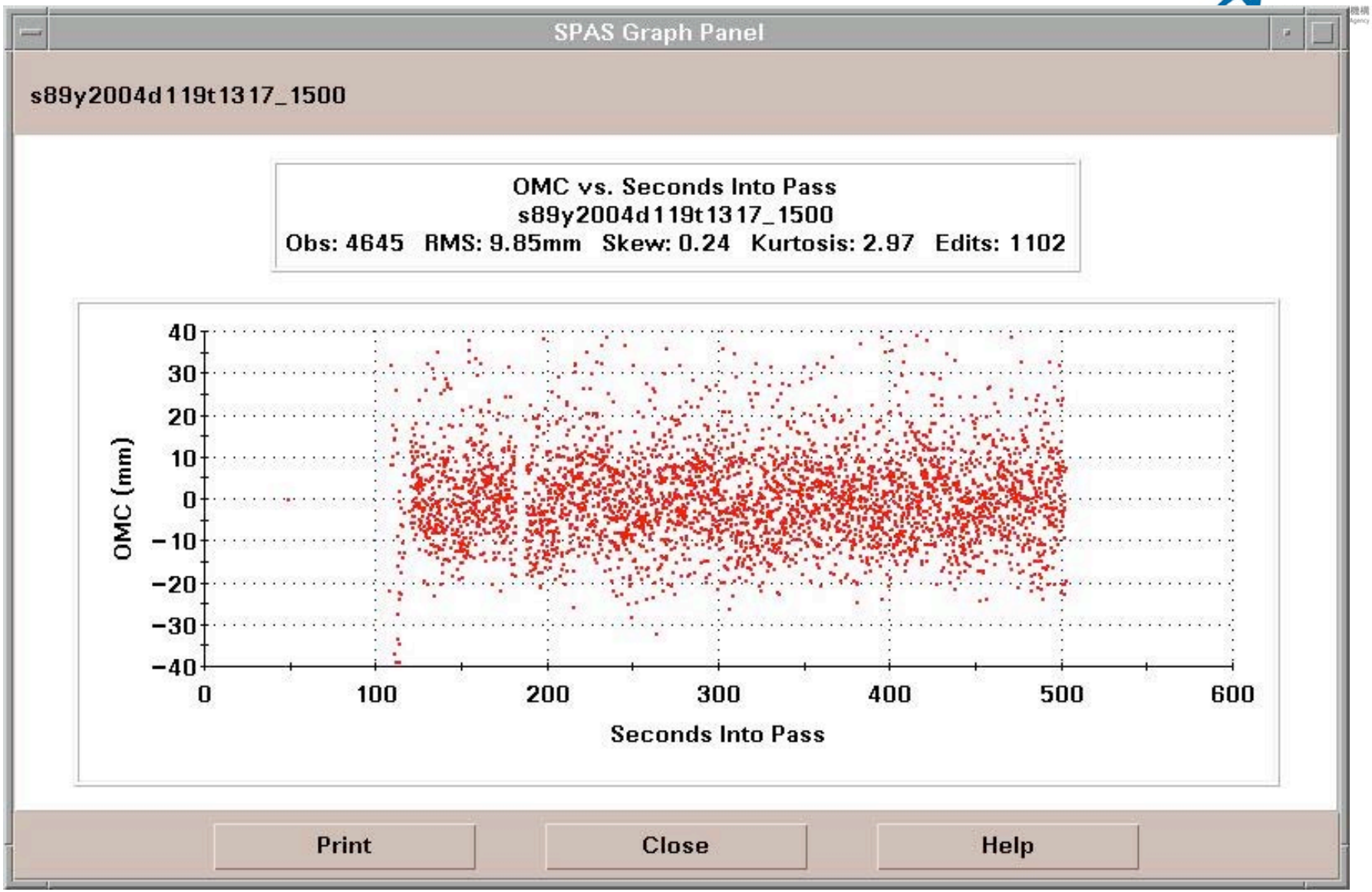
Laser

SLR Remote computer
_Tsukuba

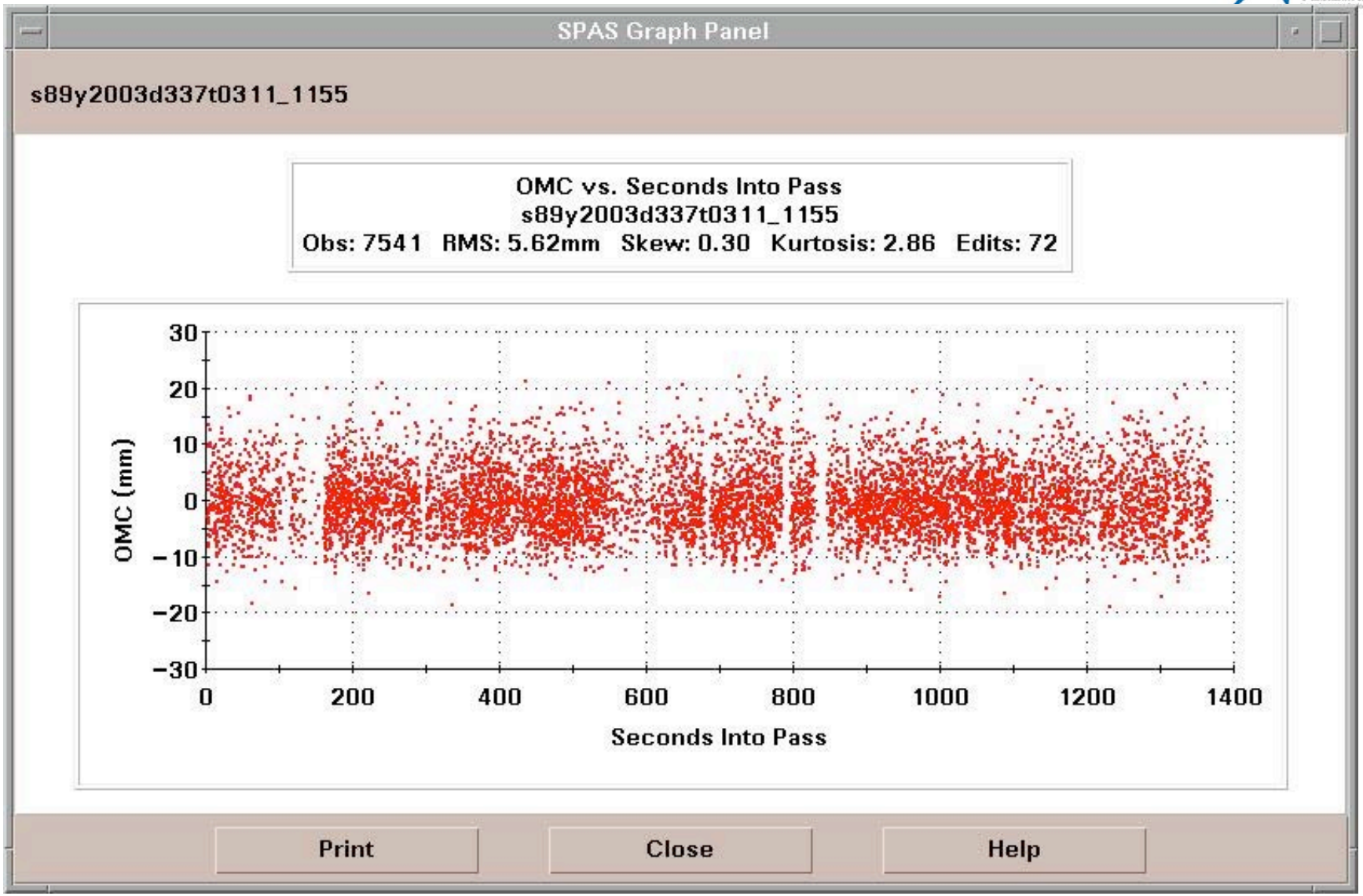


Equipments of Outdoor

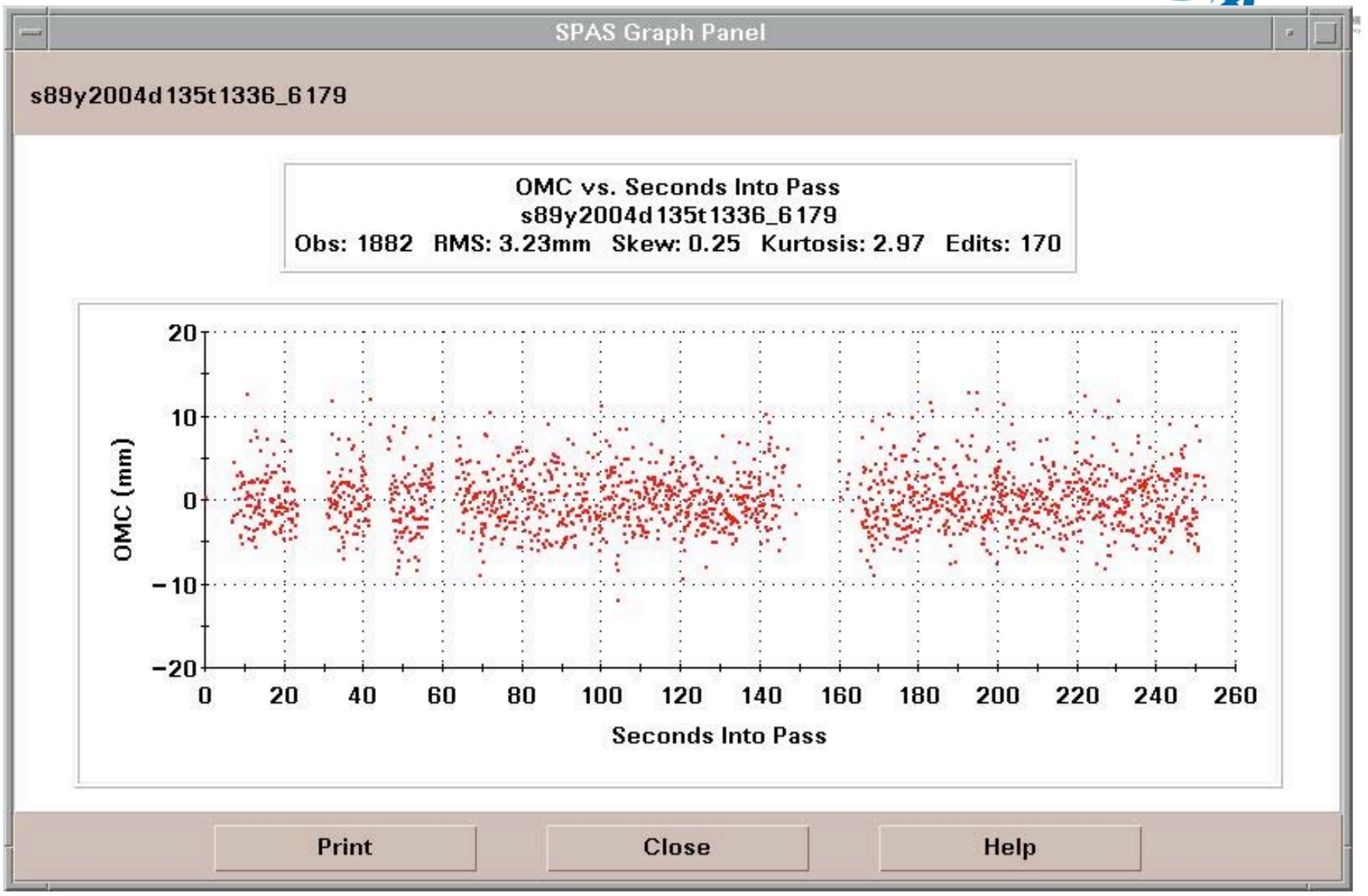
Example of o-c values of Tanegashima



Ajisai, Data Set #3: s89y2004d119t1317_1500 RMS=9.85mm



Lageos-1, Data Set #3: s89y2003d337t0311_1155 RMS=5.62mm

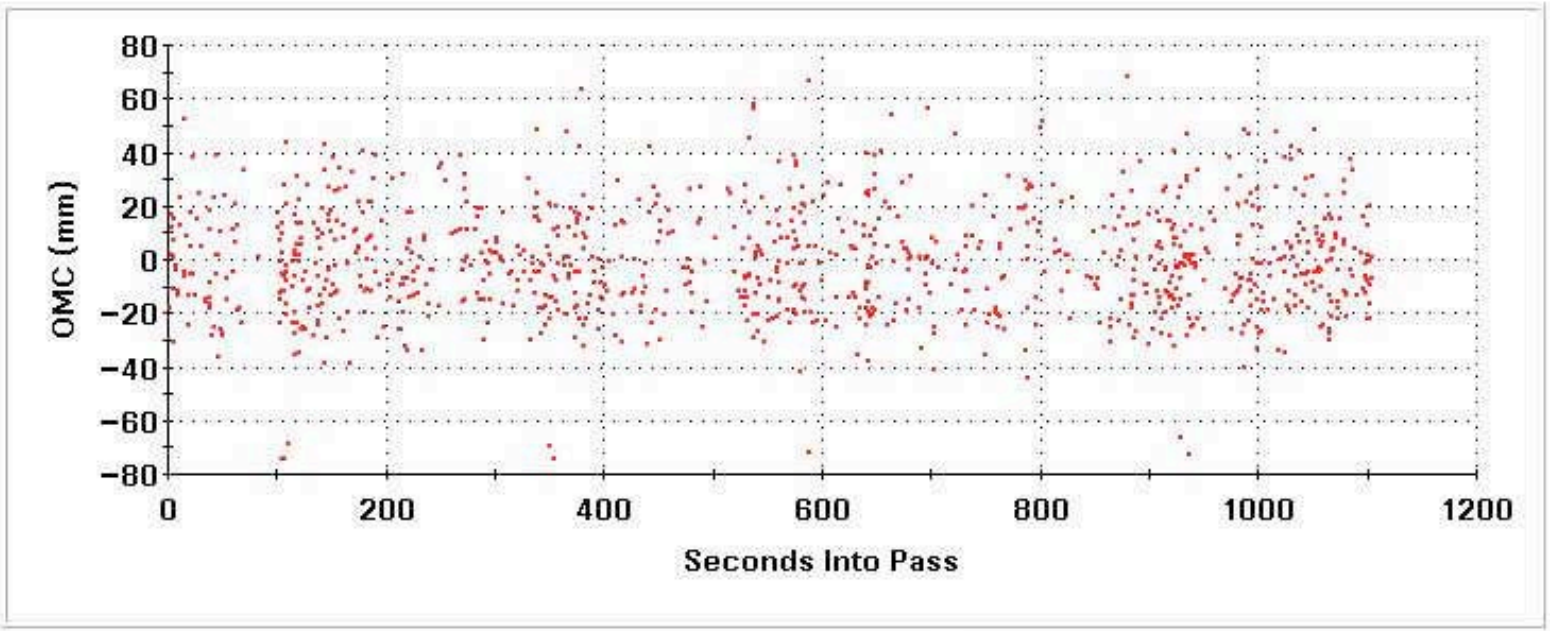


Envisat, Data Set #4: s89y2004d135t1336_6179 RMS=3.23mm

SPAS Graph Panel

s89y2004d093t1653_3636

OMC vs. Seconds Into Pass
s89y2004d093t1653_3636
Obs: 984 RMS: 18.47mm Skew: 0.41 Kurtosis: 2.74 Edits: 22



Print Close Help

GPS36, Data Set #3: s89y2004d093t1563_3636 RMS=18.47mm

Conclusion

We are ready to contribute to the ILRS!