PANSY（南極昭和基地大型大気レーダー）のデータ処理・配信システムとデータ公開

西村耕司

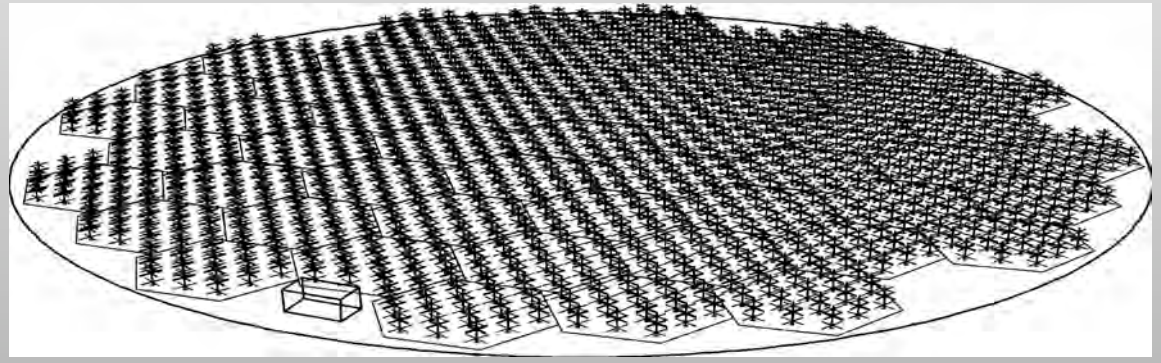
情報・システム研究機構
極域環境データサイエンスセンター／
国立極地研究所

The Program of Antarctic Syowa (PANSY) MST/IS Radar

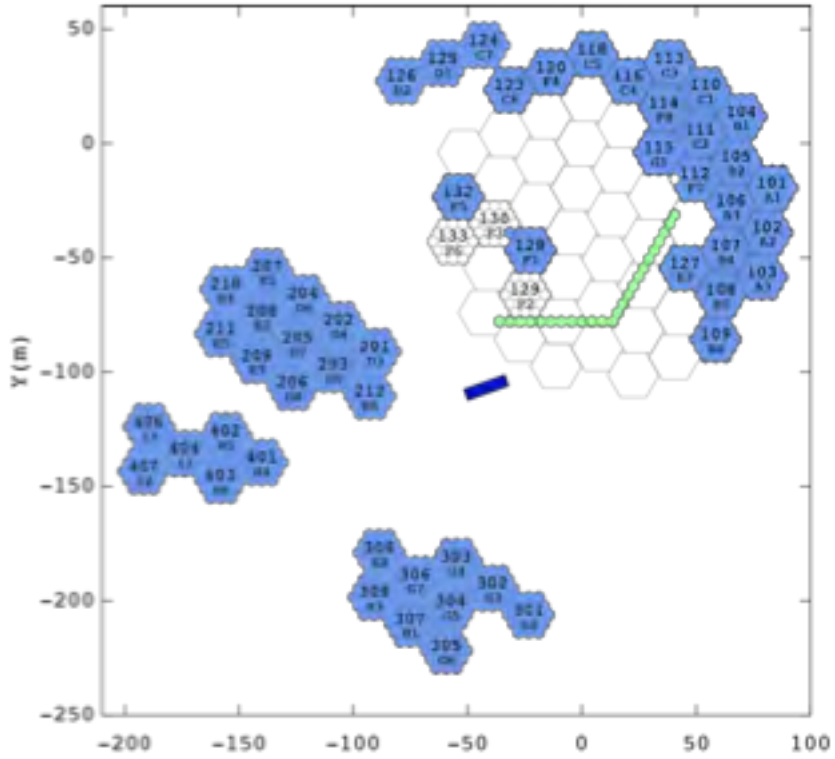
- Height coverage : 1-500km
- Three dimensional winds and plasma parameters
- Fine time and height resolutions

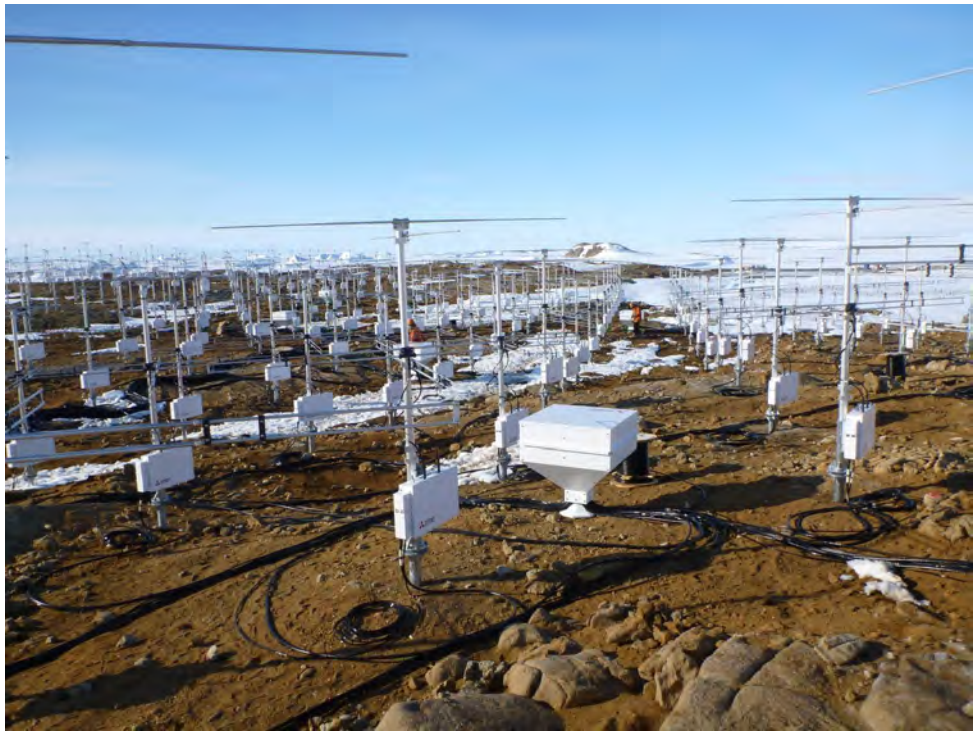
System	Pulse Doppler radar. Active phased array
Center freq.	47MHz
Antenna	A quasi-circular array consisting of 1045 cross- Yagi antennas. Diameter ~160m
Transmitter	1045 solid-state TR modules Peak Power : 500kW
Receiver	55 channel digital receiving systems

The original plan was like this ....

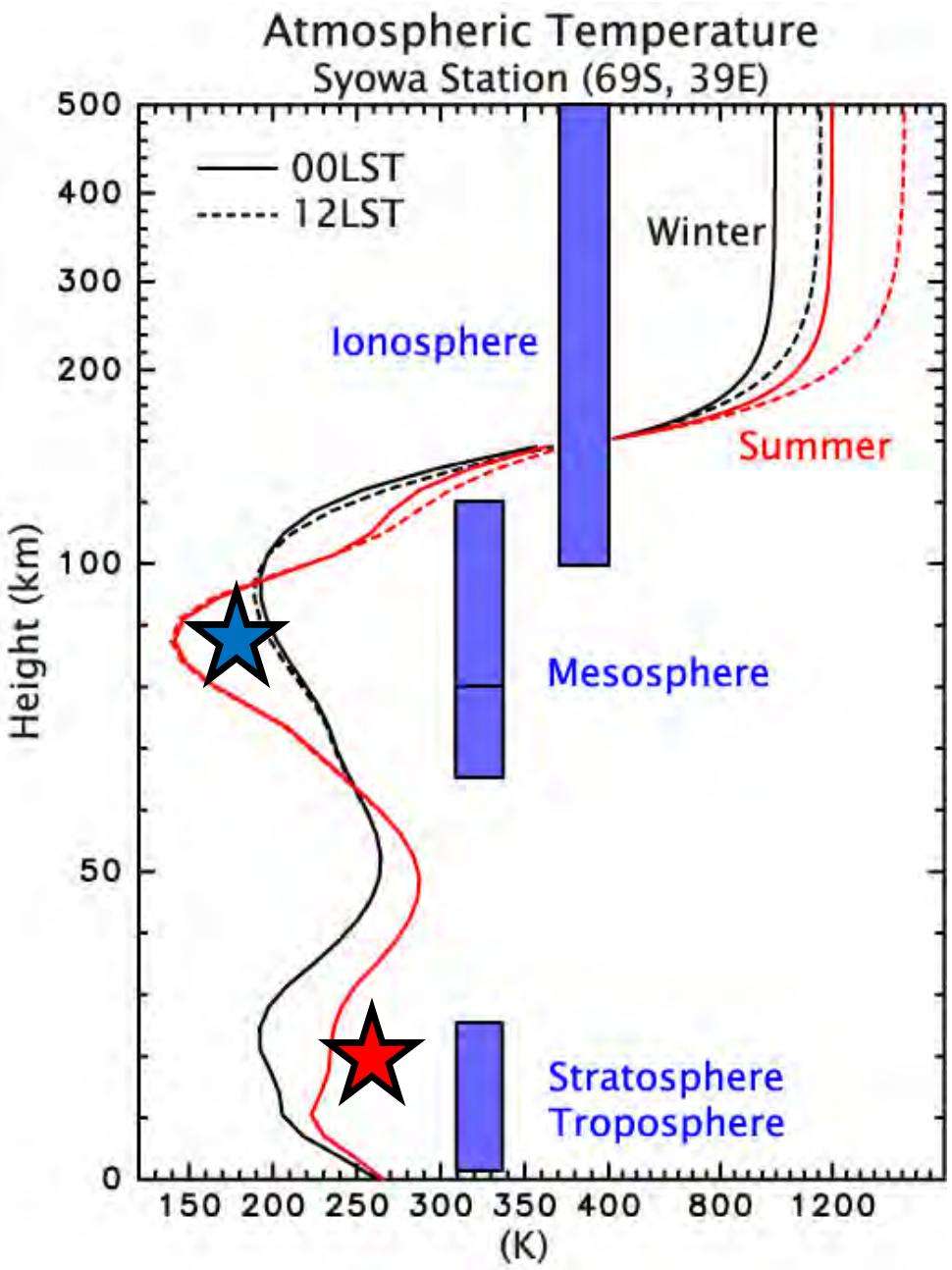


Antenna arrangement has been changed in 2012 to avoid severe snow accumulation.





Temperature Profile above Syowa Sta.



PANSY & it's Data Archiving Systems

PANSY Radar

Antennas & Power Amps:
Main 1045
FAI (Aux) 24
Aperture 18326 m^2
Transmital Pow.
at peak: 500kW
on ave: 25kW
Frequency: 47.0 ± 0.5 MHz
Digital Receiver:
Main: 55 ch
FAI Aux: 8 ch

Radar Output

Data Rate
Regular: 4.3 GByte/day
High-Speed: 1.0 TByte/day

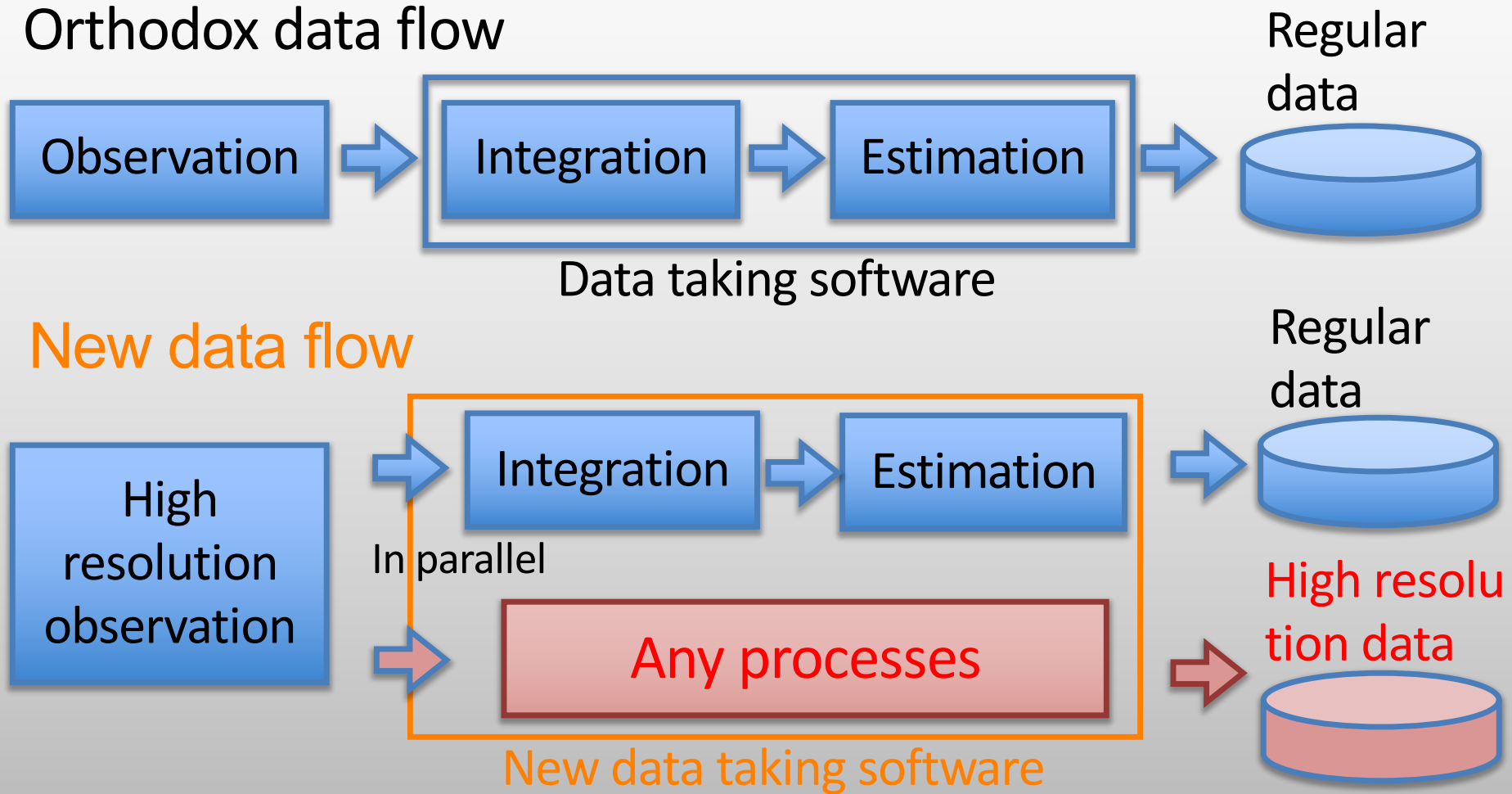
Data Archiving System (PANDA)

At Syowa, PANSY Obs. hut:
Sever: 14
Storage: 500 TByte
At Syowa, Data Proc. Blt:
Sever: 4
Storage: 200 TByte
At NIPR (Tachikawa Campus)
Server: 9
Storage: 400 TByte
At Univ. Tokyo
Sever: some
Storage: 500 TByte
At Kyoto Univ.
Storage: 100 TByte

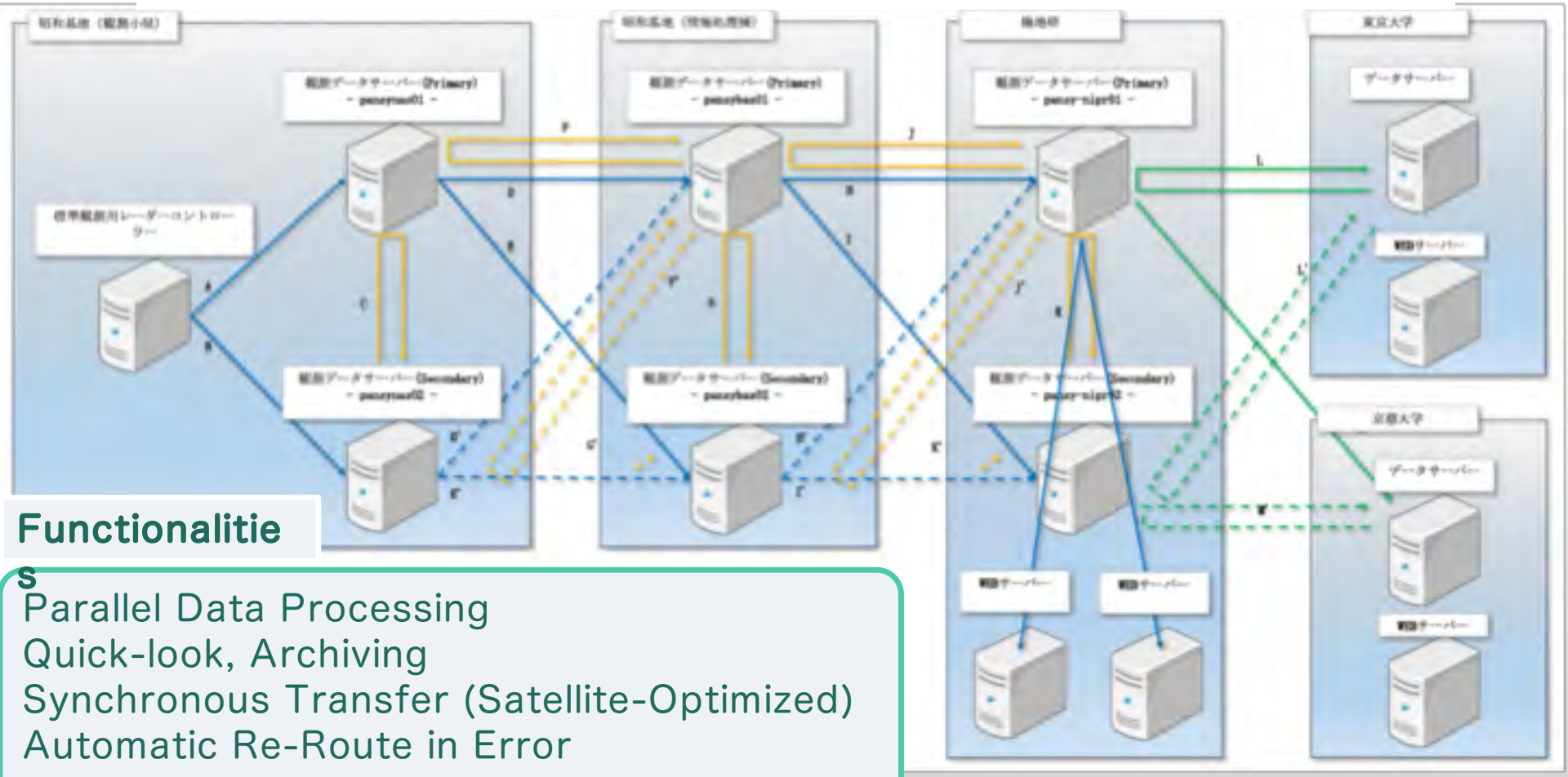
Reduce data are transferred through the satellite.
The full data set is transported on RAID HDDs by the ship once a year.

Realtime Parallel Data Processing System (on the host computer, from 2016)

Multiple data processing scheme can be applied realtime in parallel.



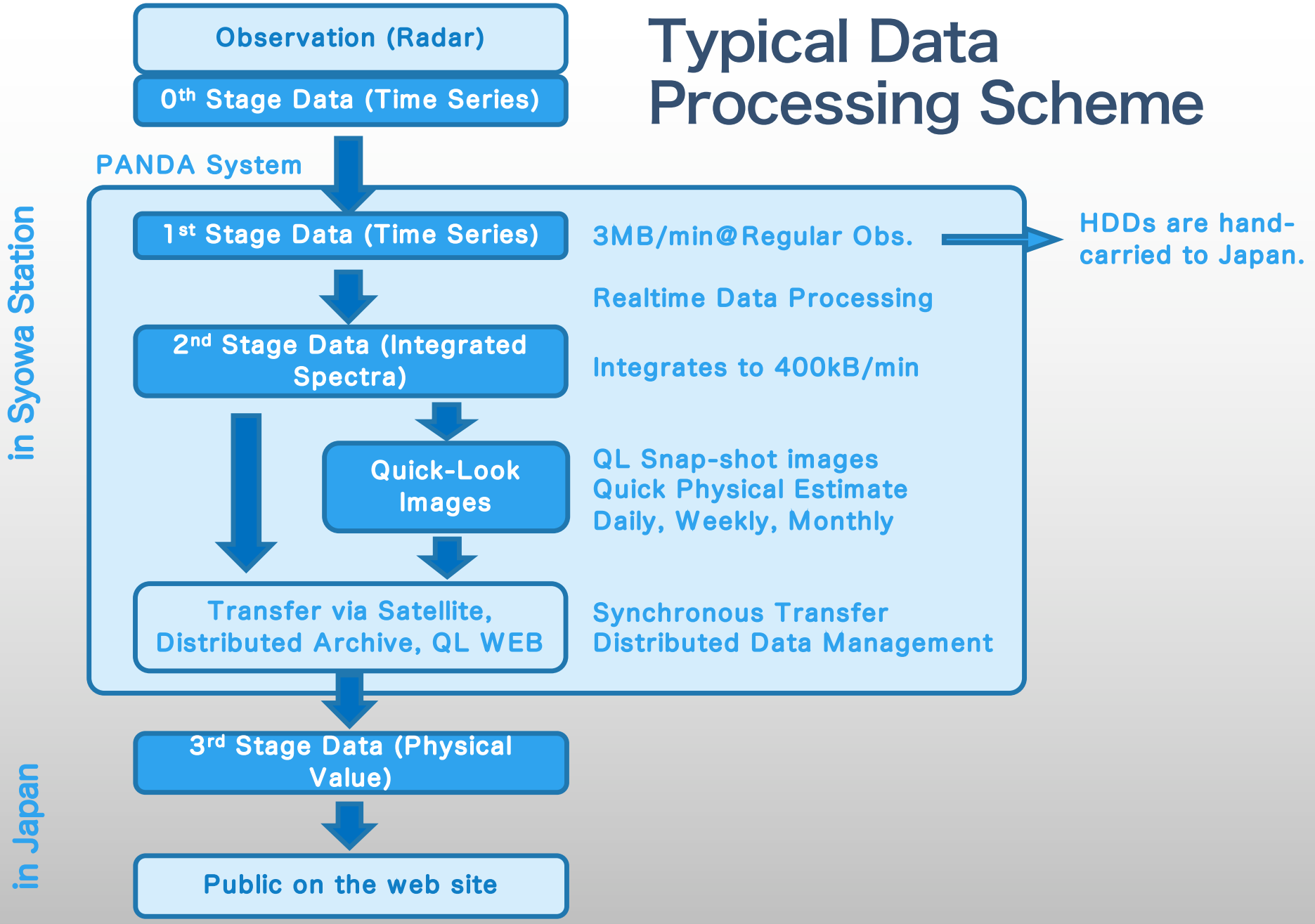
PANSY Data Archive System (PANDA)



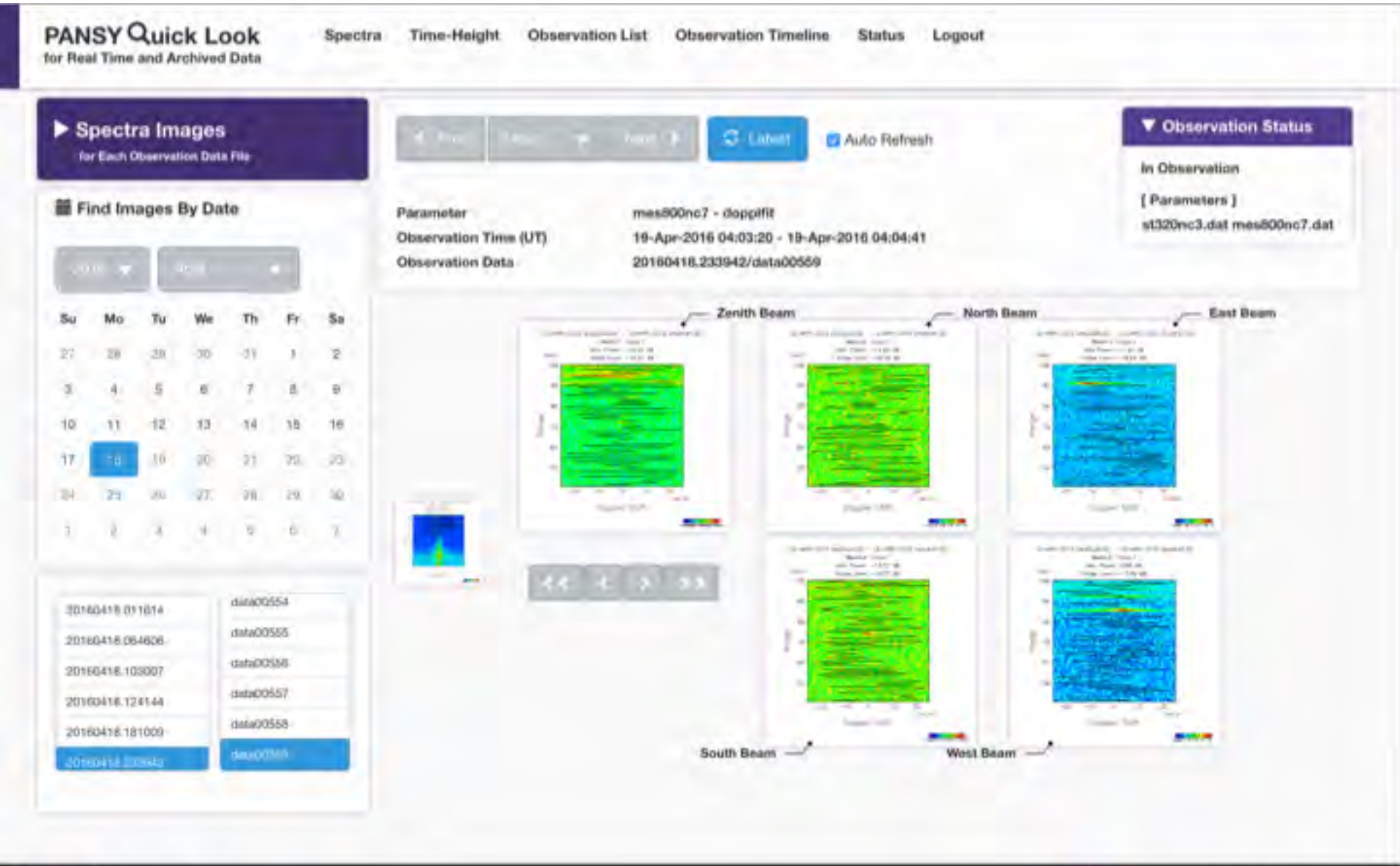
Functionalities

- Parallel Data Processing
- Quick-look, Archiving
- Synchronous Transfer (Satellite-Optimized)
- Automatic Re-Route in Error
- Automatic Consistency Check
- Automatic Recovery
- Database Management
- Web-based GUI
- Search & Display

Typical Data Processing Scheme



Quick-Look Viewer (Spectrum Snapshot)



PANSY Quick Look
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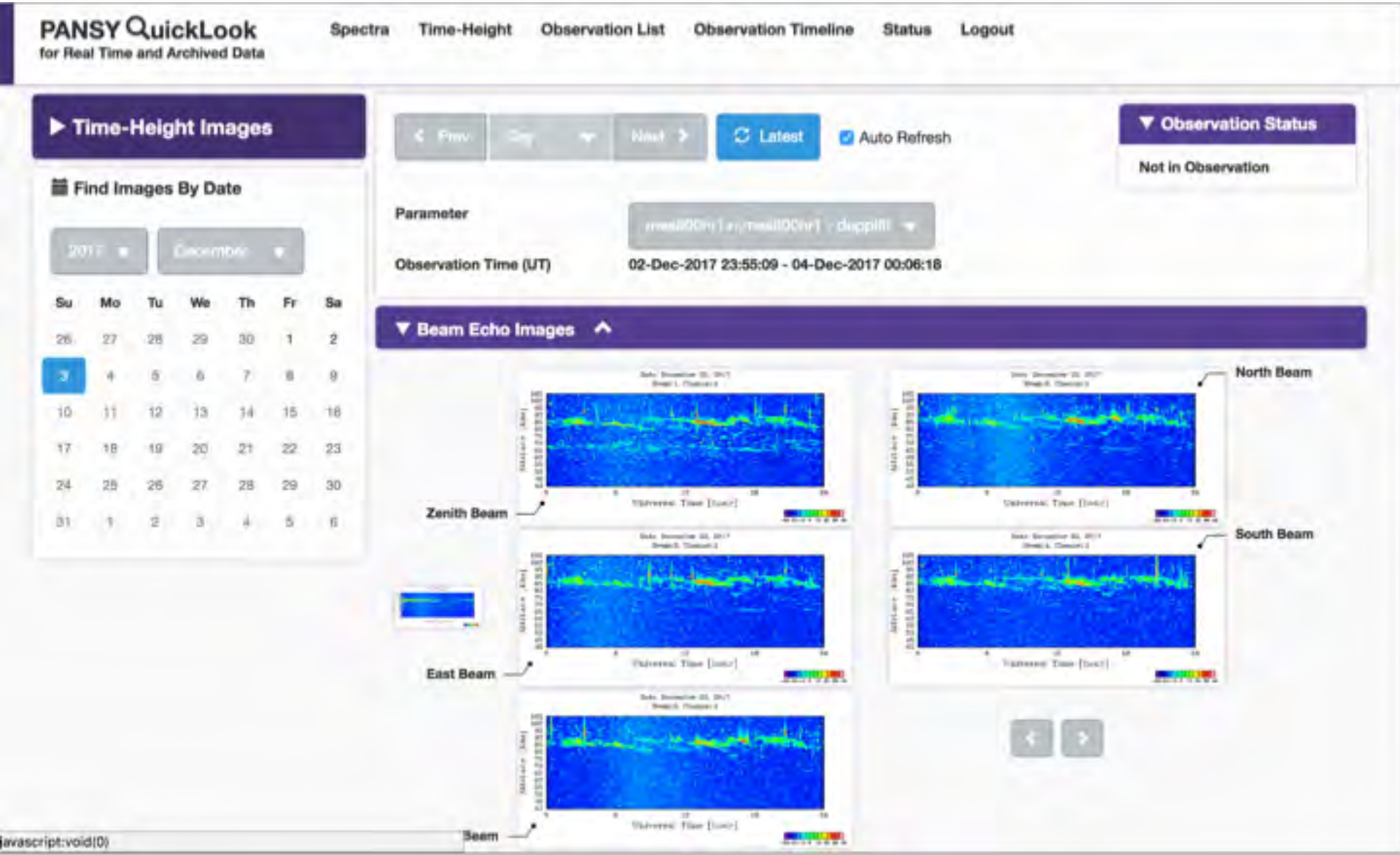
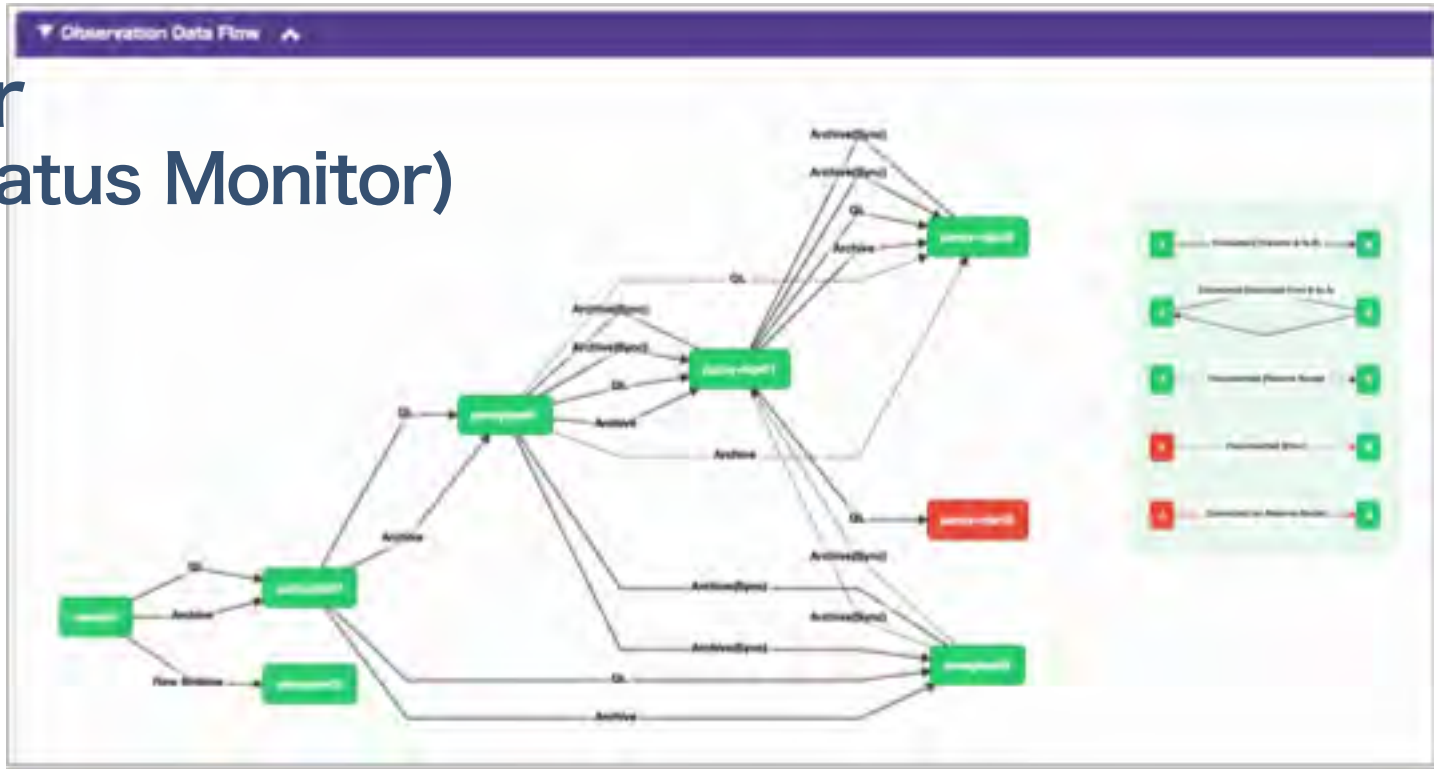
Quick-Look Viewer (Time-Height Section)



QL Viewer
(System Status Monitor)



Status Details

pansy01 - up

Process	Run Status	Process Status	Connection Status: Server Name	Connection Status: Status	Connection Status: Last Connected Time (UT)	Latest Data
panda_obsarchiver	up - normal	normal	-	-	-	-
panda_obsarchiver_rawdata	up - normal	normal	-	-	-	-
panda_obstransmitter	up - normal	normal	pansynas03	connected	05-Dec-2017 05:24:23	/data/Archive/2017/20171204.194113_st320nc3_001.tar
panda_obstransmitter_rawdata	up - normal	normal	pansynas02	connected	05-Dec-2017 05:24:50	/data/RawArchive/2017/20171205.045021.tar
panda_obssweeper	up - normal	normal	pansynas03	connected	05-Dec-2017 04:39:50	-
panda_obssweeper_rawdata	up - normal	normal	pansynas02	connected	05-Dec-2017 04:56:10	-

Data Sharing

- Processed wind estimates (6-hourly) are open to the public on the web site.
  http://pansy.eps.s.u-tokyo.ac.jp/data/

- This will be upgraded to 30-min resolution next year, and the DOIs will be tagged.

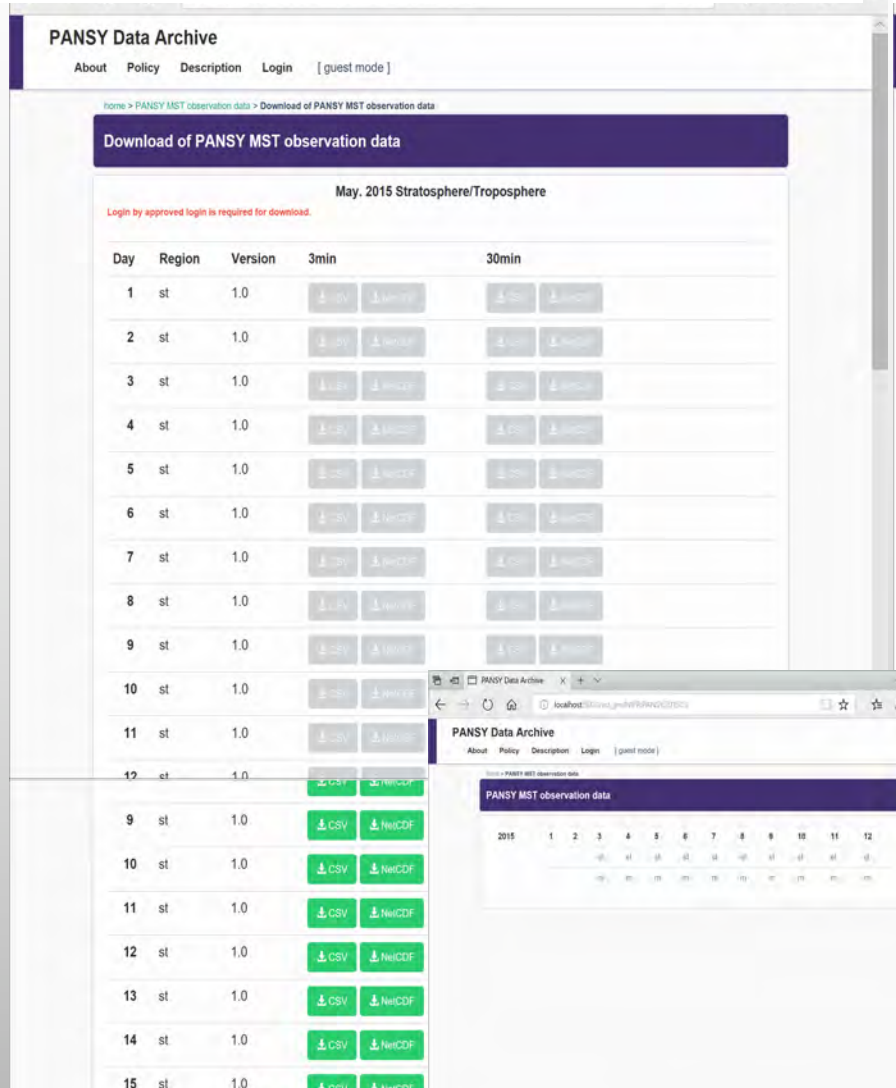
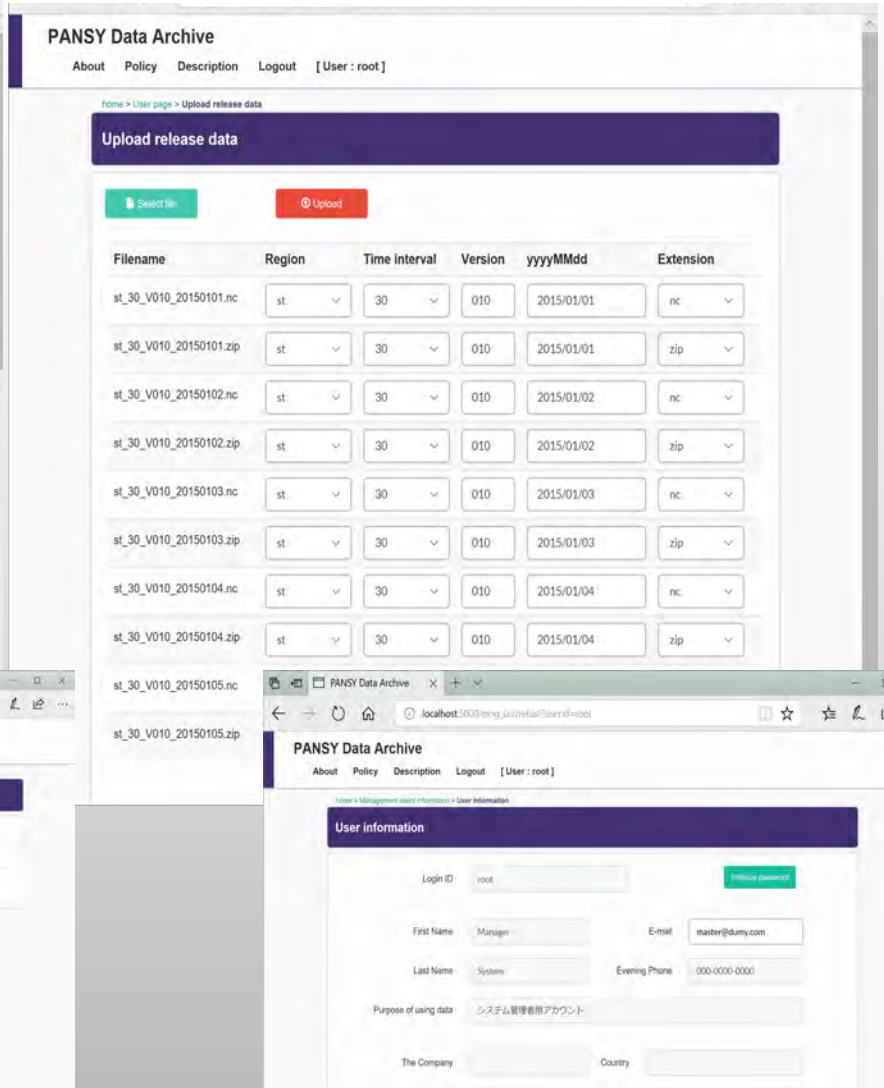
Data Sharing

- Data currently in public are to be registered to IUGONET by Mar 2018.
- Further coming data will also be registered as it will be in public on the web site.

IUGONET (www.iugonet.org)
Metadata database

データ公開WEBサイト（公開準備中）

公開側WEB画面



管理者側WEB画面