

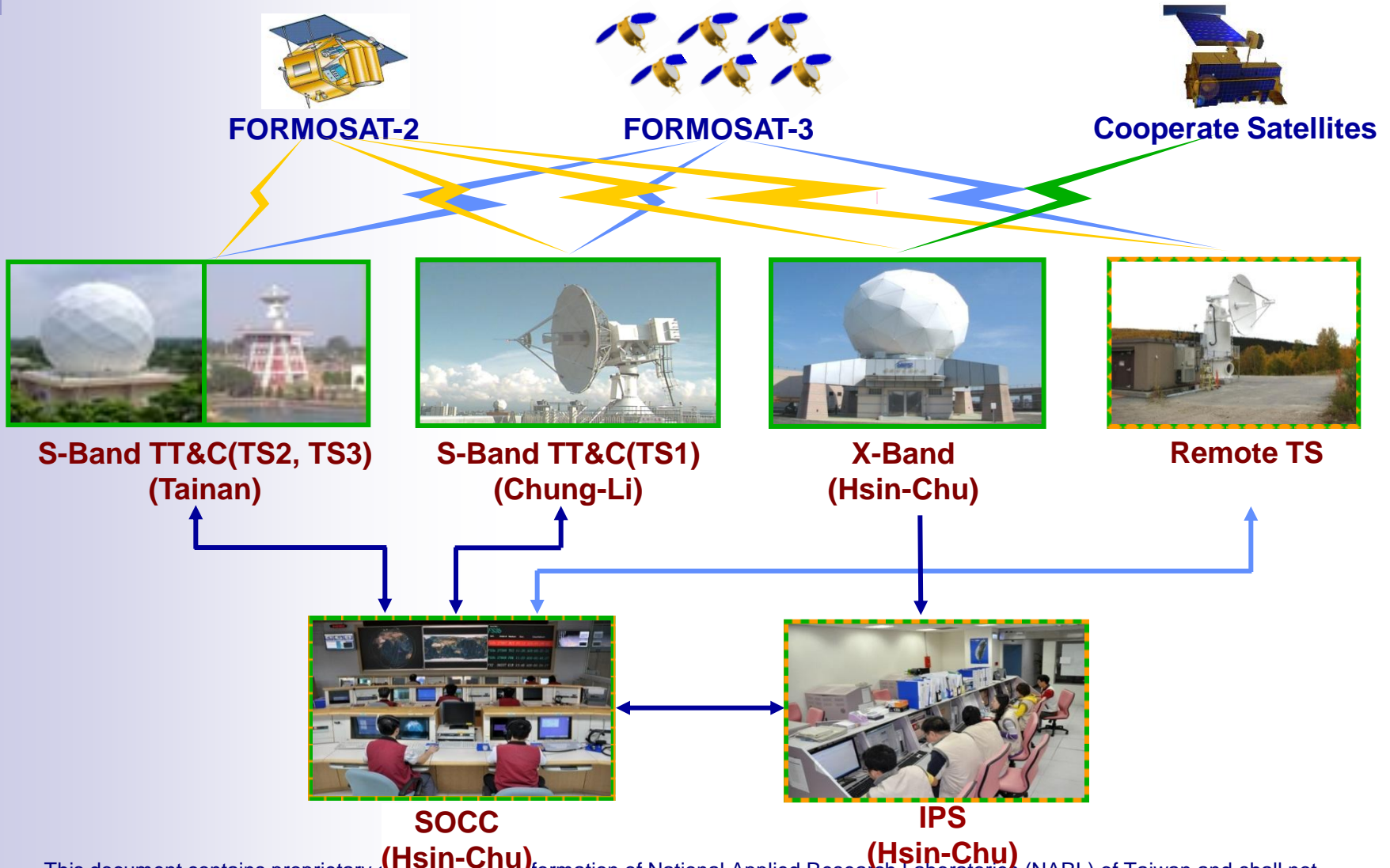
FORMOSAT-7/COSMIC-2 Ground Segment and Data Processing

Linton Chen

16 May 2013

- **NSPO will deliver the FORMOSAT-7 Ground/Operation segments and interfacing with Payload DPC and Remote Tracking Stations (RTS) to meet the mission requirements.**
 - **Satellite Operations Control Center (SOCC)**
 - **TT&C stations**
 - **Communications network interface**
 - **Ground/Flight operations development**
 - **Simulations for ground, L&EO, and normal operations**
 - **O&M team training and mission operations**

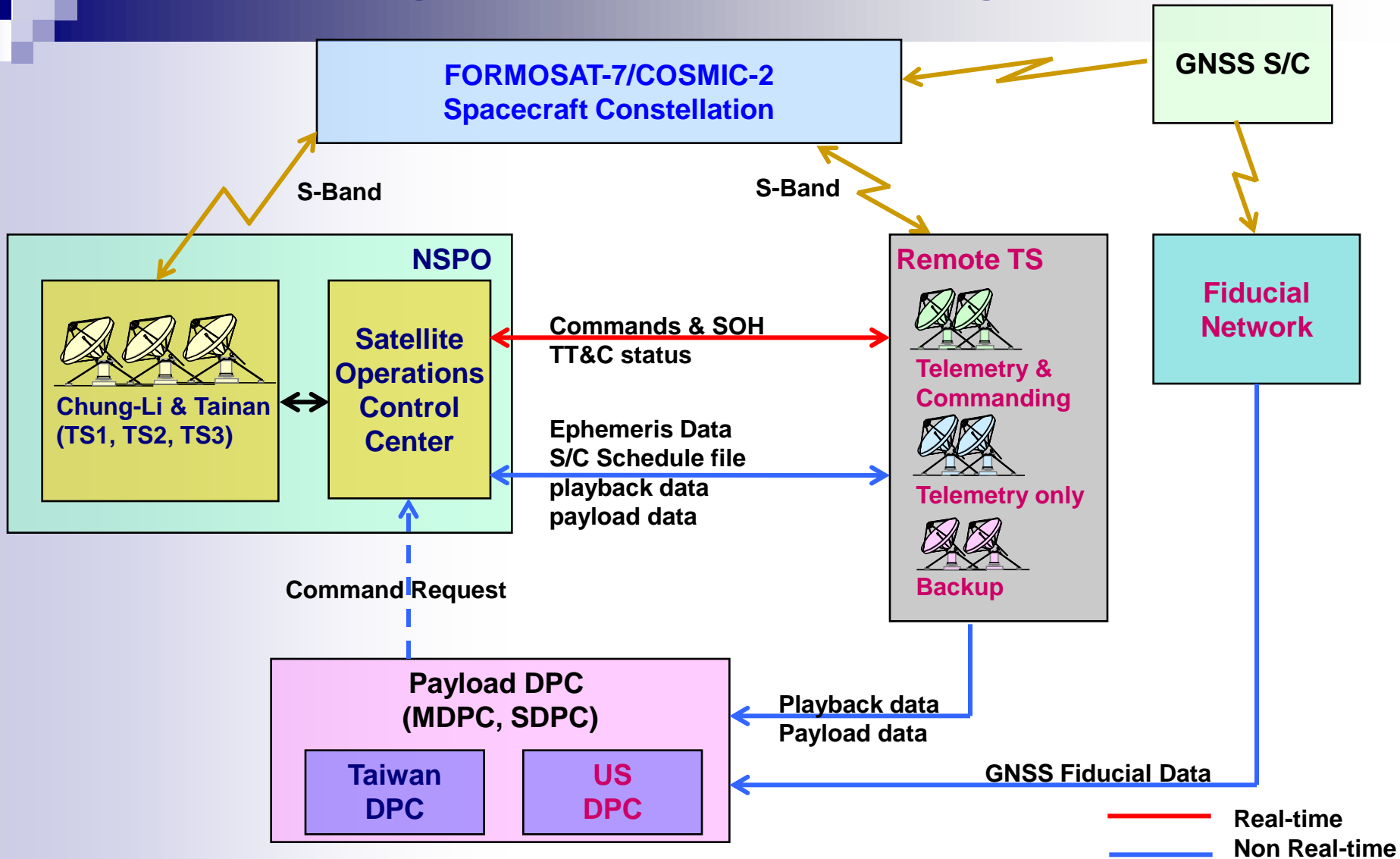
- **NSPO will fully utilize the current ground facility to accommodate the mission needs of FORMOSAT-7 including**
 - **Satellite Operations Control Center (SOCC) to manage and conduct the FORMOSAT-7 mission operations**
 - **Three existing S/S-band TT&C stations located in Chung-Li and Tainan to track and establish links with the spacecraft.**
 - **SOCC GCN (Ground Communications Network) to provide data transmission between SOCC and the external segments of RTS, Payload DPC, and Launch segment.**



- **NSPO had preliminary defined the flows of mission data included command, SOH, and payload science data provided in different operational modes between SOCC/RTS/Payload DPC.**
 - **Based on the current configuration of NSPO ground system.**
 - **NSPO will work closely with NOAA/UCAR for requirements identification and interface definition in conjunction with mission needs.**
 - **Part of interfaces will be updated after the selection of the RTS provided by NOAA.**

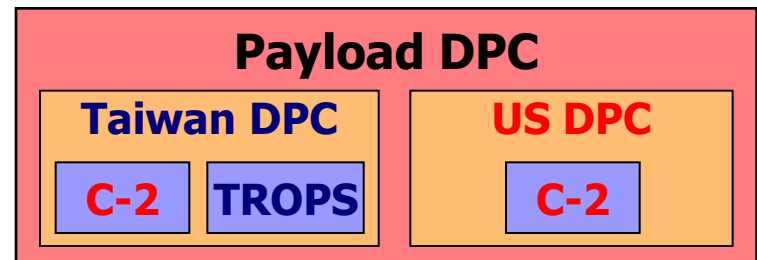
Ground Segment and Data Processing

High level Interface Diagram



- There are two DPCs built-up by US and Taiwan in the Payload DPC segment.
 - UCAR is developing the C2-CDAAC for US DPC.
 - Taiwan DPC will be the mirror site of F7/C2 data to archive and distribute all of the RO data.
 - Another validation system will process and validate the RO and other specific needs by users in Taiwan.

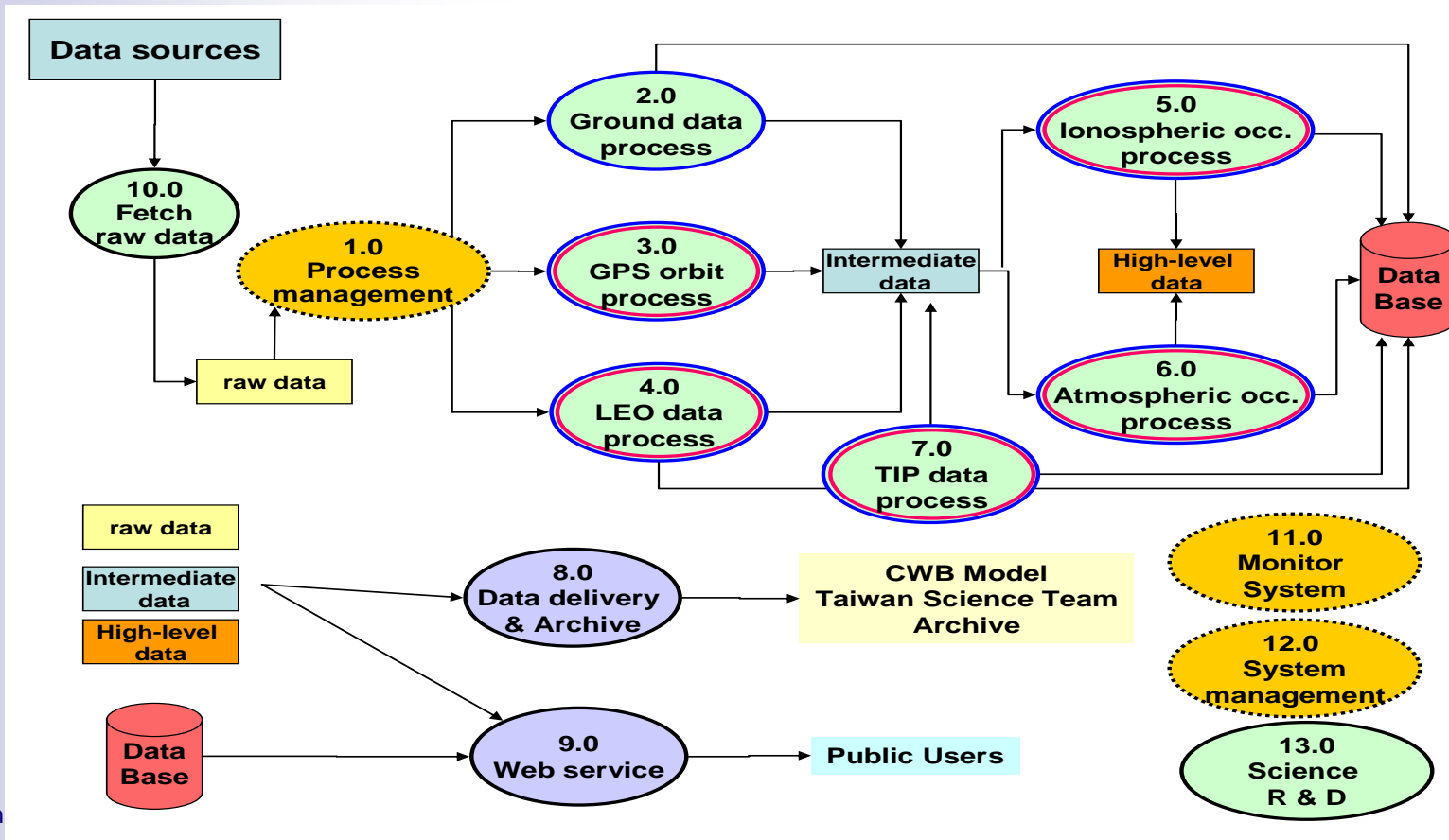
TTFRI - Taiwan Typhon and Flood Research Institute
 GPSARC – GPS Science and Application Research Center
 TACC – Taiwan Analysis Center for COSMIC



- The cooperation team of Taiwan DPC is developing the RO system based on the FORMOSAT-3/COSMIC, named **ASTRO (Analysis System Testbed for Radio Occultation)**.
- **ASTRO will be used for the data processing of FORMOSAT-7/COSMIC-2, named TROPS (Taiwan/TriG RO Process System) .**
- The member of cooperation team include the **NARL-NSPO, NARL-TTFRI, NCU-GPSARC and CWB-TACC. UCAR is the consultant to Taiwan DPC.**

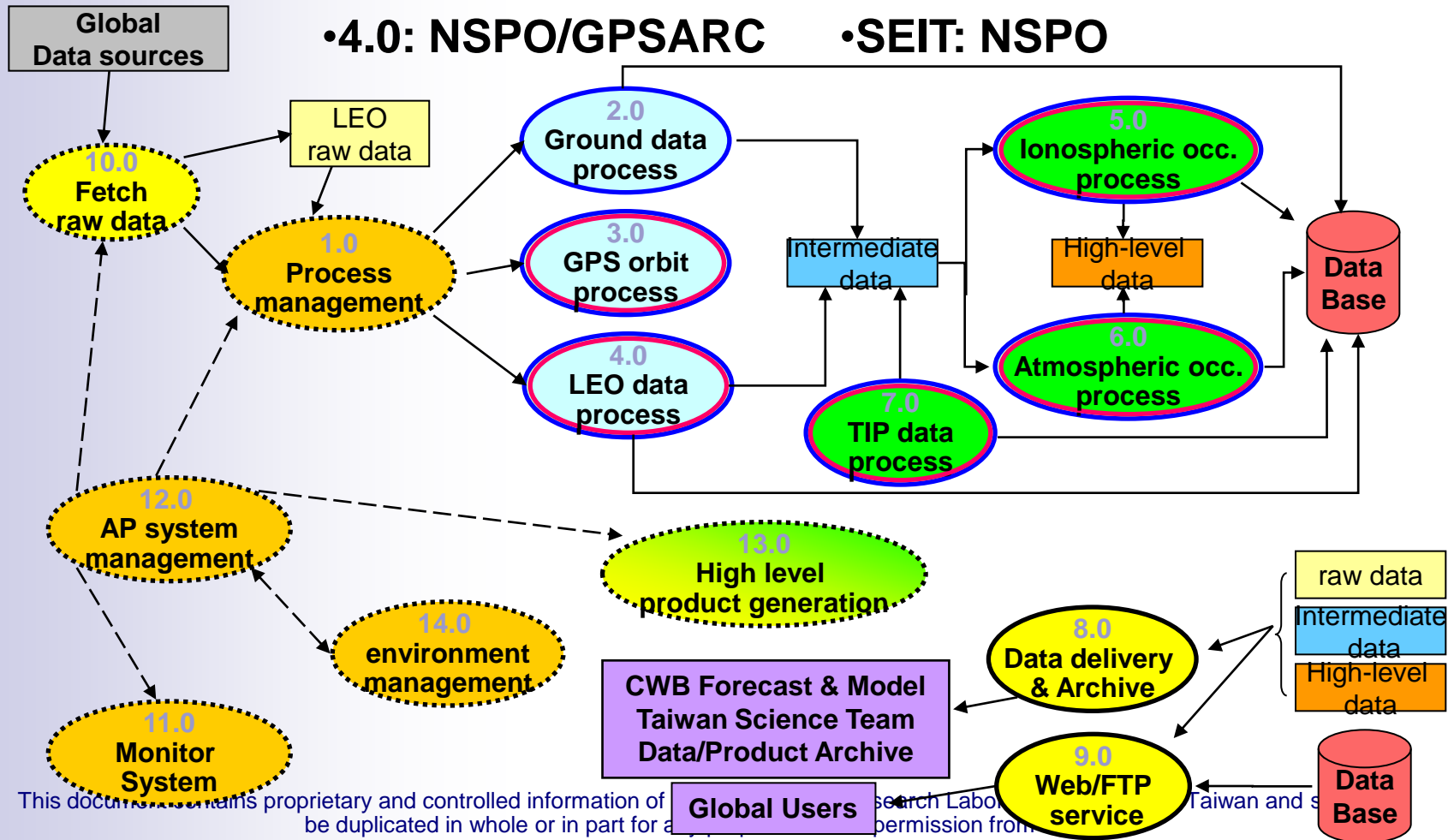
- **The major work of Taiwan DPC**
 - **Validation system requirement analysis and design.**
 - **Software development**
 - Core function of RO data processes.
 - Code, Process, System management and monitoring.
 - Data Fetching, Archiving and Service.
 - System integration and testing
 - **Hardware planning and building-up**
 - **System integration and testing for mirror site.**
 - **System O&M**
 - **RO data utility/application development**

- 1.0: TACC
- 2.0: GPSARC
- 3.0: GPSARC
- 4.0: NSPO/GPSARC
- 5.0: GPSARC
- 6.0: GPSARC
- 8~12: TACC
- SEIT: NSPO

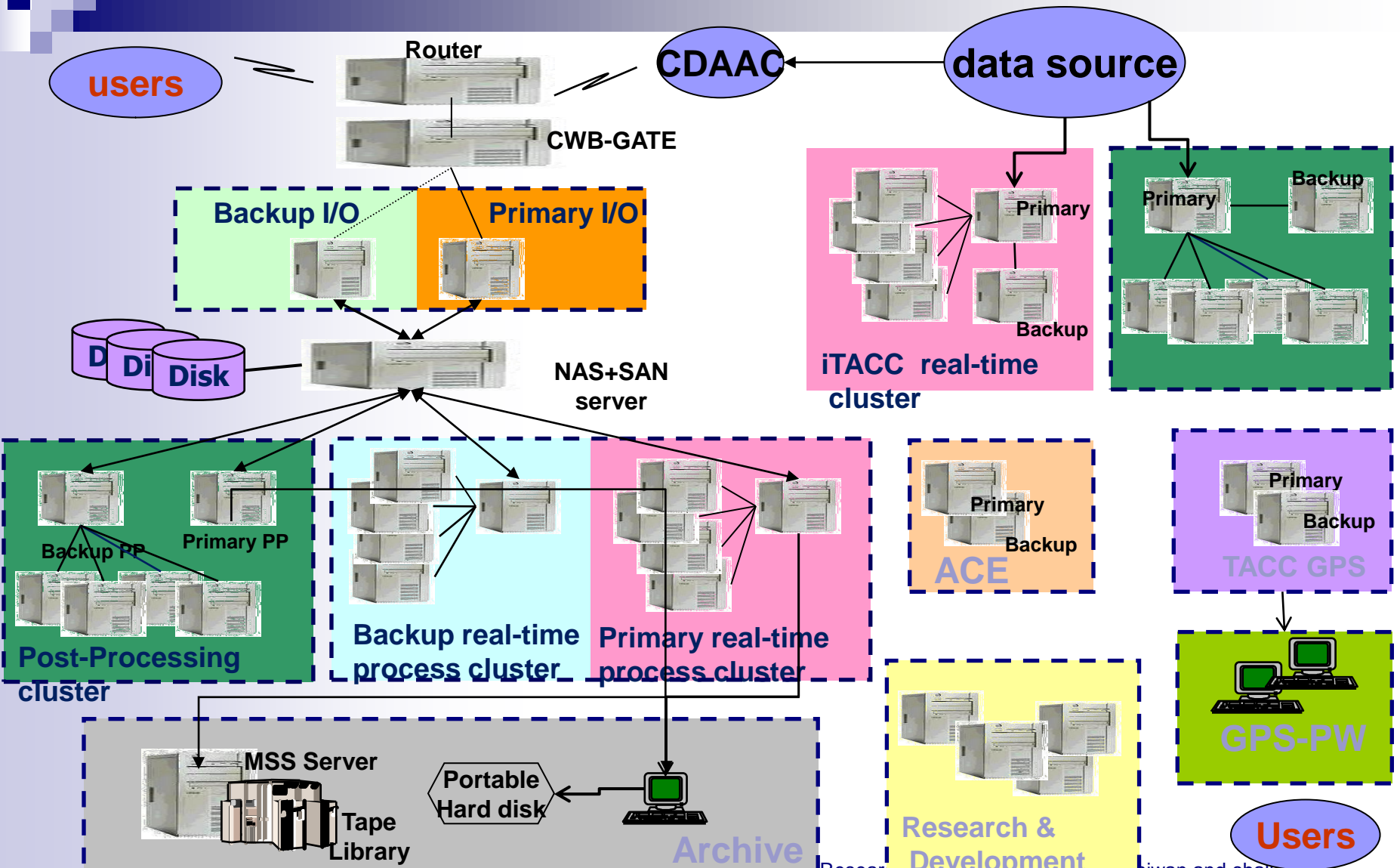


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- 8.0~14.0: TACC
- SEIT: NSPO



Taiwan DPC hardware plan for FS-7/C-2



Date	Milestone
Sep, 2013	TROPS Requirement Review
Nov, 2013	ASTRO Readiness Review
Dec, 2013	TROPS System Design Review
Dec, 2014	TROPS System Integration Testing
Feb, 2015	C2-CDAAC Delivery to Taiwan DPC <input type="checkbox"/> Final Version of CDAAC with full C-2 capability
Nov, 2015	TROPS/C2-CDAAC Readiness Review

Thank you