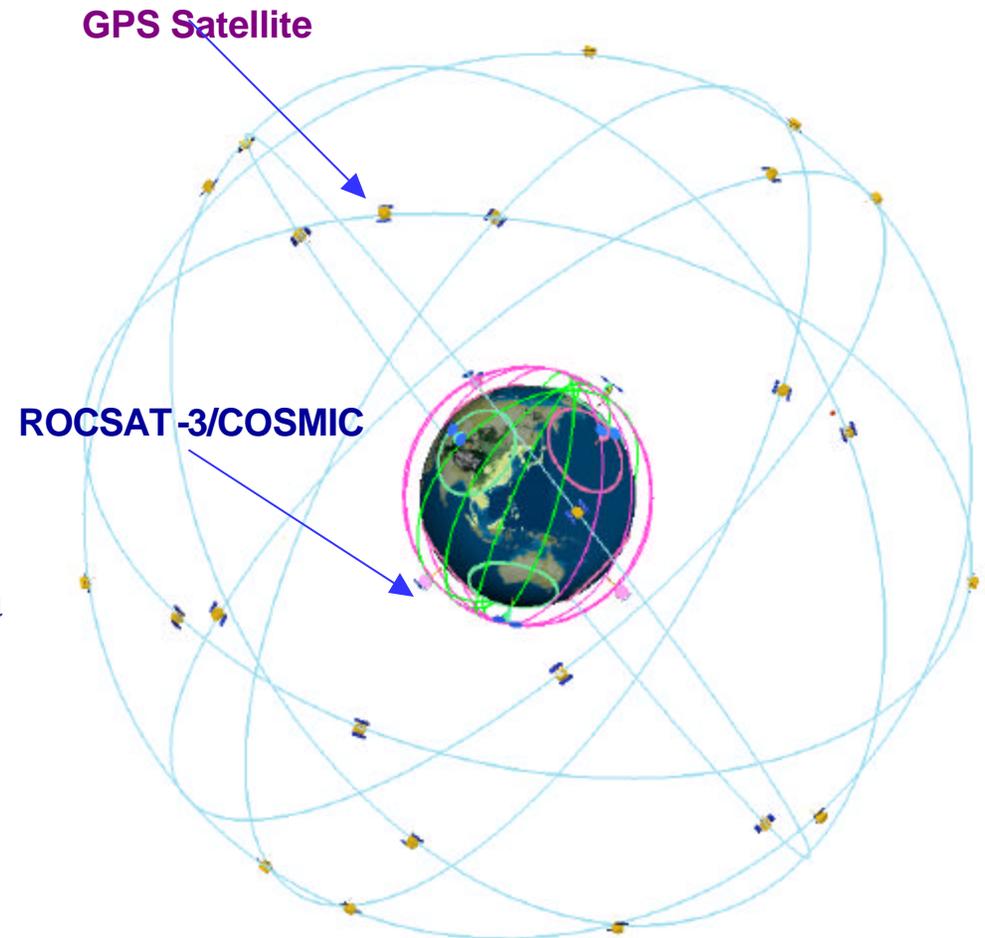


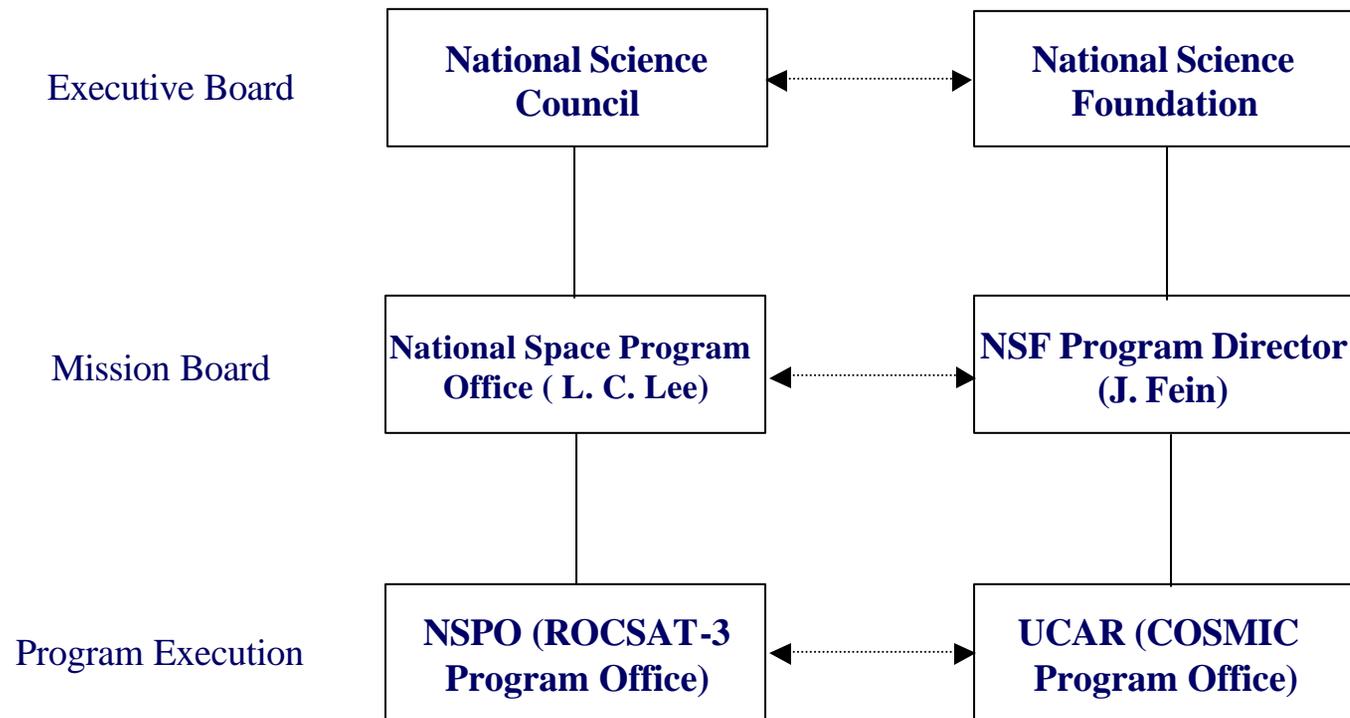
ROCSAT-3/COSMIC System Development

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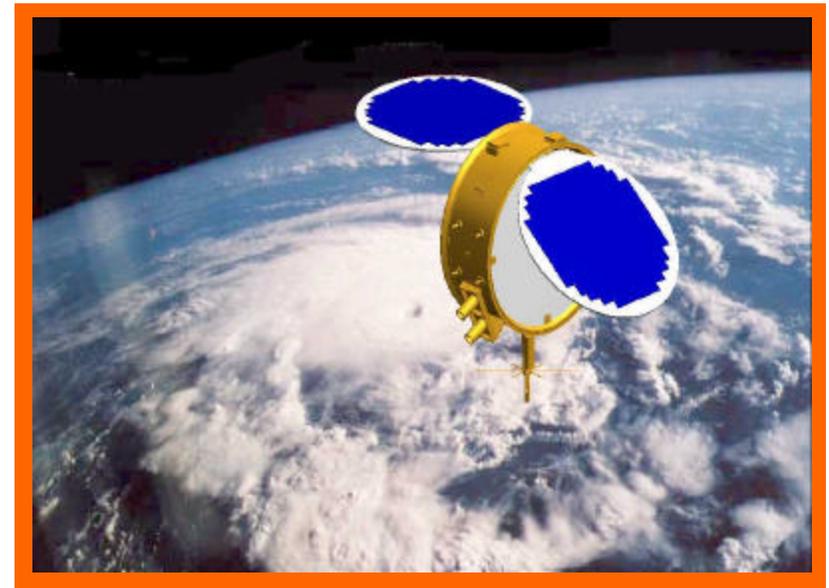
- The ROCSAT-3/COSMIC program is to launch and operate a constellation of 6 LEO micro-satellites comprised of an integrated spacecraft platform and three payloads
 - GPS occultation receiver(GOX)
 - Tiny Ionospheric Photometer(TIP)
 - Tri-Band Beacon(TBB)
- These micro-satellites collect a large amount of atmospheric data for meteorological, climatic, ionospheric, and geodetic research as well as for weather forecasting and space weather monitoring.



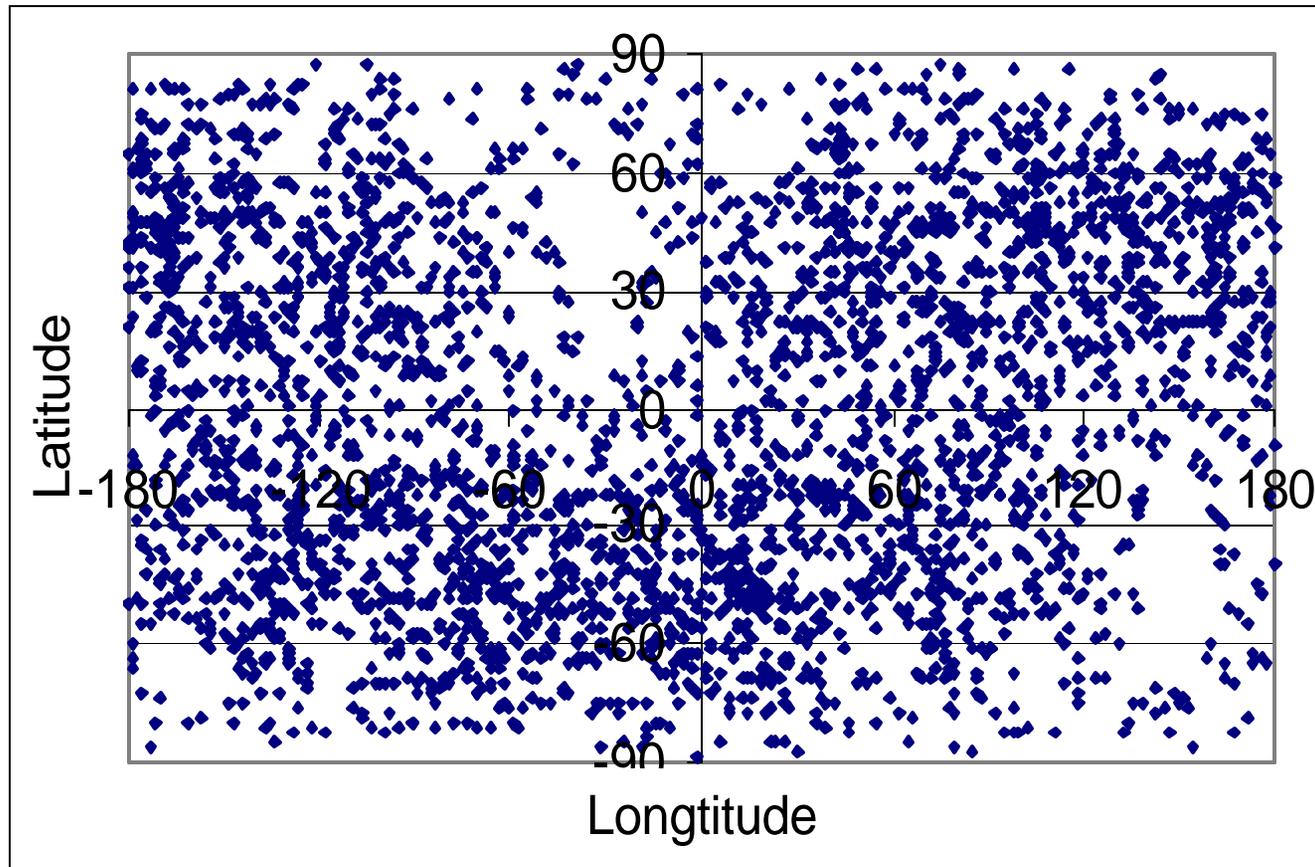
On June 30, 1999 American Institute in Taiwan (AIT) and Taipei Economic and Culture Representative Office (TECRO) in the United States signed an Agreement for Technical Cooperation associated with Development, Launch, and Operation of COSMIC.



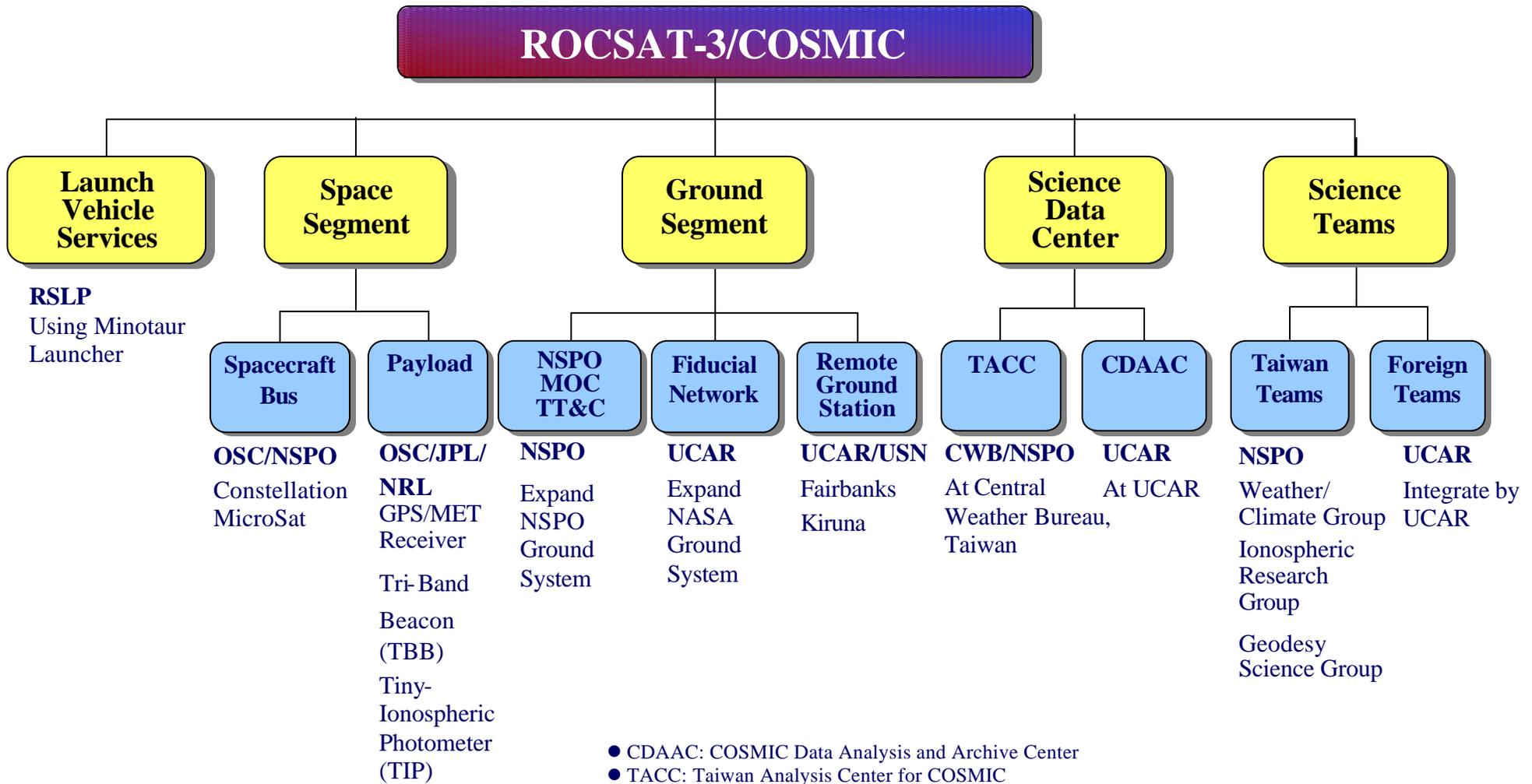
- The ROCSAT-3/COSMIC system is a constellation of 6 low-earth-orbit (LEO) micro-satellites.
- Each micro-satellite is cylindrical with weight 70 Kg , diameter 104 cm, height 18 cm, and two solar panels deploying on both sides.
- Satellite parking orbit is 475~600Km with 72-degree inclination. The individual micro-satellite will perform orbital raising maneuvers to get into 6 separate orbital planes. The mission orbit is 700-800 Km circular.
- Mission life: 2 years (design life: 5 years).
- Expected Launch Date: Fall 2005.

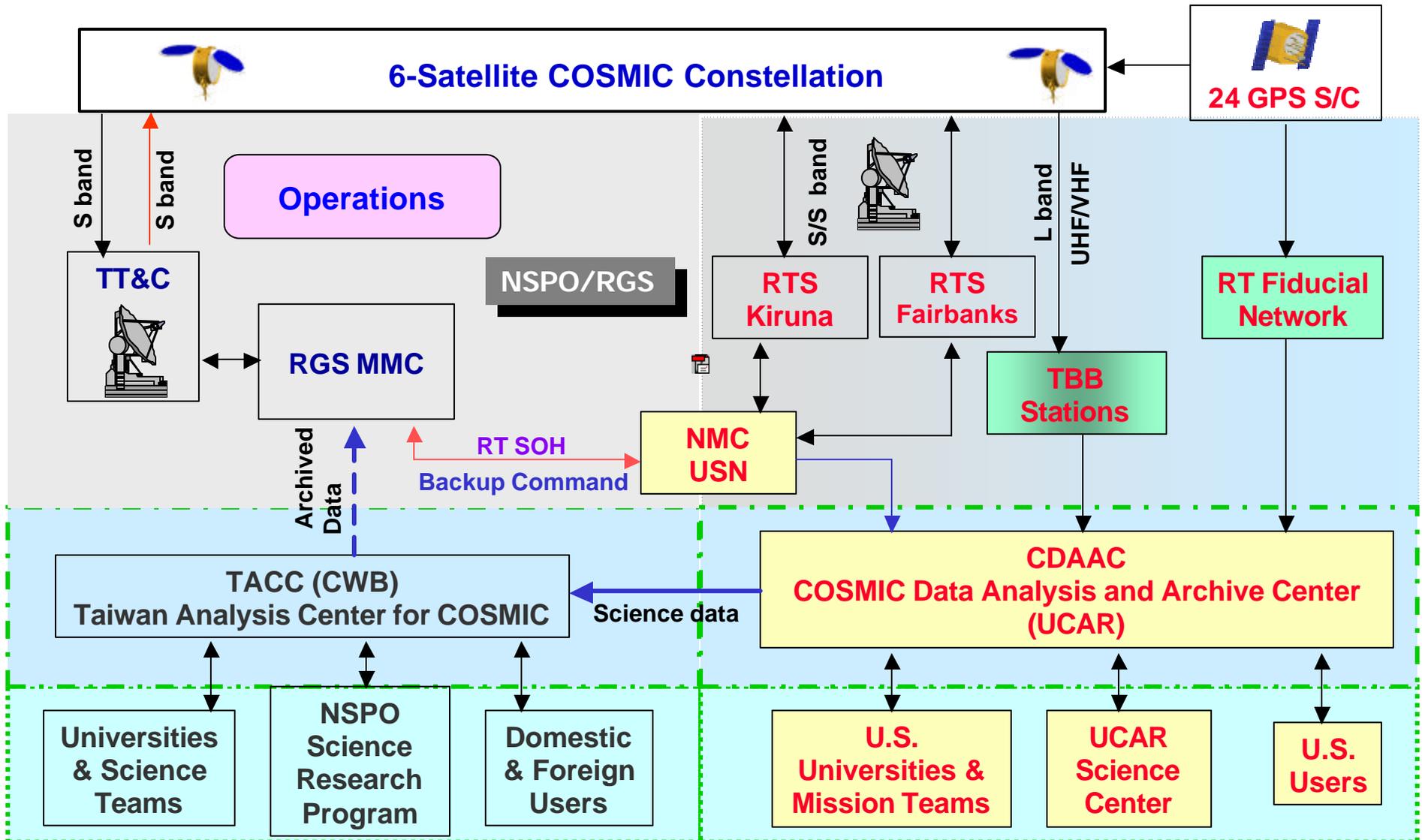


Typical Daily COSMIC Soundings



6 Planes with DW=24°





- OSC Started the Satellite Development on February 18, 2002.
- Spacecraft System Design Review was conducted on June 18-19, 2002.
- Key technical challenges
 - To keep the mass of the satellite down
 - To accommodate all RF equipments, thrusters, and thermal radiator within limited areas of micro-sat
 - To maintain the satellite attitude control to meet mission needs
- Five ROC industrial partners will provide 14 components including flight computer, MIU digital board, coarse sun sensor, S-band patch antenna etc.

Satellite Assembly, Integration and Testing

- The Engineering Development Unit and the Qualification Satellite will be built at Orbital Science Corp with the participation of NSPO staff
- The remaining five satellites will be assembled, integrated, and tested at NSPO facilities in Hsin-chu, Taiwan
- The “production line” AIT will be carried out from 1Q of 2004 to 2Q of 2005

Ground System Development

- Existing NSPO TT&C stations will be upgraded to support ROCSAT-3 command and telemetry.
- Two high latitude remote ground stations at Kiruna and Fairbanks will serve as the primary receiving stations for the payload data, while the stations in Taiwan will serve as the backup.
- The GPS occultation data will be down linked and available at CDAAC within 1.5 hours of its occurrence.

Mission Operations

- The mission will be controlled from the Mission Control Center of NSPO
- The L&EO phase of one month is expected to check out all six satellites
- On-board propellant system will maneuver the satellites to reach its final orbit constellation
- During the 13 months orbit deployment period, the scientific mission can still be performed

Data Centers and Science Operations

- The primary data processing center, COSMIC Data Analysis and Archive Center (CDAAC) will be operated by UCAR in Boulder
- Taiwan Analysis Center for COSMIC(TACC) will be the mirror site of CDAAC. It will physically located at Central Weather Bureau(CWB) ,Taipei
- During the first two years of the operations the data will be available free of charge for non-commercial use by universities, collaborators, and government sponsors

Conclusion

- The ROCSAT-3/COSMIC Program, an international collaboration program between National Science Council of ROC and the National Science Foundation of USA, is progressing as planned.
- The launch for the constellation of six microsats is planned on the fall of 2005. The collected data is expected to demonstrate operational capability of GPS occultation measurement for weather forecasting, and to advance research of meteorological, climatic, ionospheric and geodetic sciences.