Using The Advanced Multi Mission Operations System (AMMOS)

The AMMOS is a NASA resource developed to reduce the cost and/or risk in:

- Developing the Mission Operations System
- Conducting Mission Operations

William Knopf
Program Executive for AMMOS/PDS/NSSDCA/Cassini/GRAIL/Mission Operations
Planetary Science Division, Science Mission Directorate, NASA HQ

Andrew Dowen
Project Manager for AMMOS
JPL

Carole Boyles
Deputy Project Manager for AMMOS
JPL
AMMOS

**Background**

A typical decomposition of an MOS into Functional Elements is shown below:

The AMMOS is based upon a simple idea:
Provide a common core set of Mission Operations System capabilities (tools and services).
Allows the mission to shorten development/test time & cost for inherited capabilities and focus development on mission unique capabilities.
MGSS Business Model

- Multi Mission Ground System and Services (MGSS) Office is the NASA Program Office responsible for the AMMOS.

- AMMOS tools and their lifetime maintenance are funded by the NASA Science Mission Directorate, Planetary Science Division and are available free of charge to all missions

- Each Flight Project funds the cost to adapt the AMMOS tools (e.g. CMD and TLM dictionaries, flight rules & constraints, etc.) as needed

- NASA HQ/PSD strongly encourages the use of AMMOS tools when appropriate for your ground system solution.

AMMOS Contributions

- AMMOS tools and services contain contributions and collaborations from the NASA community including (but not limited to) the following:
  - AMES, JHU/APL, JPL, GSFC, MSFC.
Contacts for AMMOS

- Website: [http://AMMOS.jpl.nasa.gov](http://AMMOS.jpl.nasa.gov)
- Contact MGSS Program Office at: ammos_info@jpl.nasa.gov, or
  - William.knopf-1@nasa.gov (202) 358-0742
  - Andrew.z.dowen@jpl.nasa.gov (818) 354-8191
  - Carole.a.boyles@jpl.nasa.gov (818) 393-6991

Mission Timeline for Teams with MGSS

- Competing missions contact MGSS during the Proposal phase to take advantage of inheritance and Cost/Risk benefits
- Non-Competing missions contact MGSS in Pre-Phase A
- By the end of Phase B, flight projects have a good understanding of the schedule and product deliveries desired by MGSS. This commitment of schedule and products is translated into a Service Level Agreement (SLA).
- MGSS supports missions from inception through Phase E of the mission
Collaborations between MGSS and PDS

- MGSS and PDS have strengthened their collaboration to further multi-mission support by:
  - Addressing the data processing gap between mission data and development/delivery of products to PDS
  - Provide multi-discipline / multi-mission tools across the PDS and flight projects

- MGSS developed a tool called “AMMOS PDS Pipeline Service” (APPS) to automate the PDS data delivery process. The tool includes:
  - Label Design
  - Transformation
  - Validation includes both XML and JSON reports
  - Bundling

- The APPS tool is currently being used by the InSight Project
AMMOS Collaboration with PDS
APPS Pipeline View

Legend:
- APPS Component
- Mission Component
- PDS Component