SOFIA Archive Transition from DCS to IRSA

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SOFIA Users Group #10
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Guidance received 5/18/16

- SOFIA Science Mission Operations (SMO) to transfer science data archive (outward facing) to IRSA
- Includes raw and processed science instrument (SI) data
  - Other engineering data if needed for science
- Includes proprietary (“exclusive use”) data, i.e. data accessible to guest investigators for 1 year
- Includes old science data (even Early Science)
- Includes all needed documentation
Deliverable Details

- Transition Plan to be developed by 11/1/16
- USRA is to provide the transition plan
  - even if the work is not completed by the end of our contract (end of Feb 2017)
  - even if IRSA is not funded through USRA
- SMO allowed to work with IRSA to make credible transition plan, but it is not a Statement of Work until it comes from NASA
- Specific contents:
  - definition of the data delivery process,
  - Required interface control documents
  - Definition of IRSA requirements for successful transition and continued SOFIA operations
  - Description of assumptions/rationale for requirements
  - Definition of required deliverables
  - Roles/responsibilities of IRSA and SMO for reporting, metrics, user support
Data Cycle: Current ConOps

Observatory
- Aircraft Platform
- Telescope Assembly (TA)
- Science Instrument (SI)

Mission Control and Communication System (MCCS)

SOFIA Operations Center (SOC)
- Observatory Data Cache (ODC)
- Hangar / Integration Labs / Mirror Coating Facility (MCF)

SOFIA Science Center (SSC)
- SI Labs / Integration Lab (SIL)
- Data Cycle System (DCS) Archive
- Data Processing System (DPS)
- Data Cycle System (DCS) Proposal Tool

Observing Plan

Start

Science Investigators

Finish
Data Cycle: New
Figure 2. Data transfer schematic diagram. The delivery cycle from SOFIA to IRSA is initiated by new observations from the Observatory or by generation of revised products by the Data Processing System.
Data processing

- Data processing and transfer remain SMO tasks through archive and SMO contract transitions
- All SI: Level 1 (raw) FITS data in DCS archive within a day
- Facility instruments: FORCAST, FLITECAM, FIFI-LS, HAWC+
  - Processed to Level 2 (artifact-free) by pipeline and ingested into DCS archive
  - Calibrated to Level 3 (physical units, telluric correction) and ingested into DCS archive within 15 working days
- Principal Investigator instruments:
  - GREAT provides calibrated data within 45 days
  - EXES similar but uses pipeline at SMO

No processed data for HIPO
Archive interface

• The SMO DCS archive interface would no longer be used by astronomers
  – We may retain the DCS interface for internal work
  – Advantage is integration of data products with proposals, observing requests, and flight plans

• The IRSA archive interface would be used by guest investigators and archival investigators
  – Exclusive use periods enforced
DCS Archive: Advanced interface

### Science Archive Search

**Get Observations For Matching Criteria**

- **Mission:**
  - Year: ALL
  - MissionID: ALL

- **Observation Period:**
  - DateTime Range:
    - Begin: 00:00:00
    - End: 23:59:59

- **Primary Investigator:**
  - First Name: 
  - Last Name: 

- **Plan ID:** 

- **AORID:** 

- **Instrument:**
  - Name: ALL
  - Detector Channel: ALL
  - Config: ALL
  - Spect/EI/1/Spect/EI2: ALL

- **Frequency Range:**
  - From (GHz): 
  - To (GHz): (GREAT Only)

- **Wavelength Range:**
  - From (Microns): 
  - To (Microns): (FIFI-LS and EXEs Only)

- **Processing State:**
  - LEVEL_3

- **Product Type:** 

- **Observation Type:**
  - ALL

- **Target:**
  - SIMBAD Position
  - NED Position

  - RA(hh:mm:ss): 
  - DEC(deg:mm:ss): 
  - Equinox: 2000

- **Spatial Search:**
  - Radius:  (arcsec)

  - OR

  - Galactic: 

**Basic Search**

- **Result Per Page:** 50
- **Downloadable Only:**
- **Result Organized By:** Data File

**Result Setting:**

- Optional Fields in Data File Table:
  - PlanID
  - PI
  - AORID
  - Obs Type
  - Exposure Time
  - Obs Start/End
  - Product Type
  - Observer
  - Ingest Date
  - Source

- **Submit**
- **Reset**
DCS Archive: Advanced interface

• The basic interface was provided in response to SUG and other user feedback that the DCS archive interface had too many options and returned too many files.
Science Archive Search

Get Observations For Matching Criteria

- **Mission:**
  - **Year:** ALL
  - **Mission ID:** ALL

- **Observation Period:**
  - **Begin Time:** 00:00:00
  - **End Time:** 23:59:59

- **Primary Investigator:**
  - First Name: 
  - Last Name: Armus

- **Plan ID:**

- **AOR ID:**

- **Name:**

- **Detector Channel:**

- **Config:**

- **SpectEl1/SpectEl2:**

- **Instrument:**
  - **Channel:**

- **Frequency Range:**
  - From (GHz): 
  - To (GHz): (GREAT Only)

- **Processing State:** LEVEL_3

- **Product Type:**

- **Observation Type:**

- **Target:**
  - SIMBAD Position
  - NED Position

- **Spatial Search:**
  - Radius: (arcsec)
  - OR
  - Equatorial: 
  - Equinox: 2000

- **Basic Search**

Result Setting:

- Optional Fields in Data File Table
  - PlanID
  - PI
  - AOR ID
  - Obv Type
  - Exposure Time
  - Obs Start/End
  - Product Type
  - Observer
  - Ingest Date
  - Source

Result Per Page: 50

Downloadable Only: 

Result Organized By: Obs Plan AOR

Page 1 of 1  (1 - 2 of 2) Results Organized By Obs Plan AOR

Get Selected AORs Associated Data In Current Page
Get All AORs Associated Data In All Pages

There is a 30GB download limit.

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IRSA Herschel Interface

- Example of possible interface for SOFIA products
## Capabilities

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