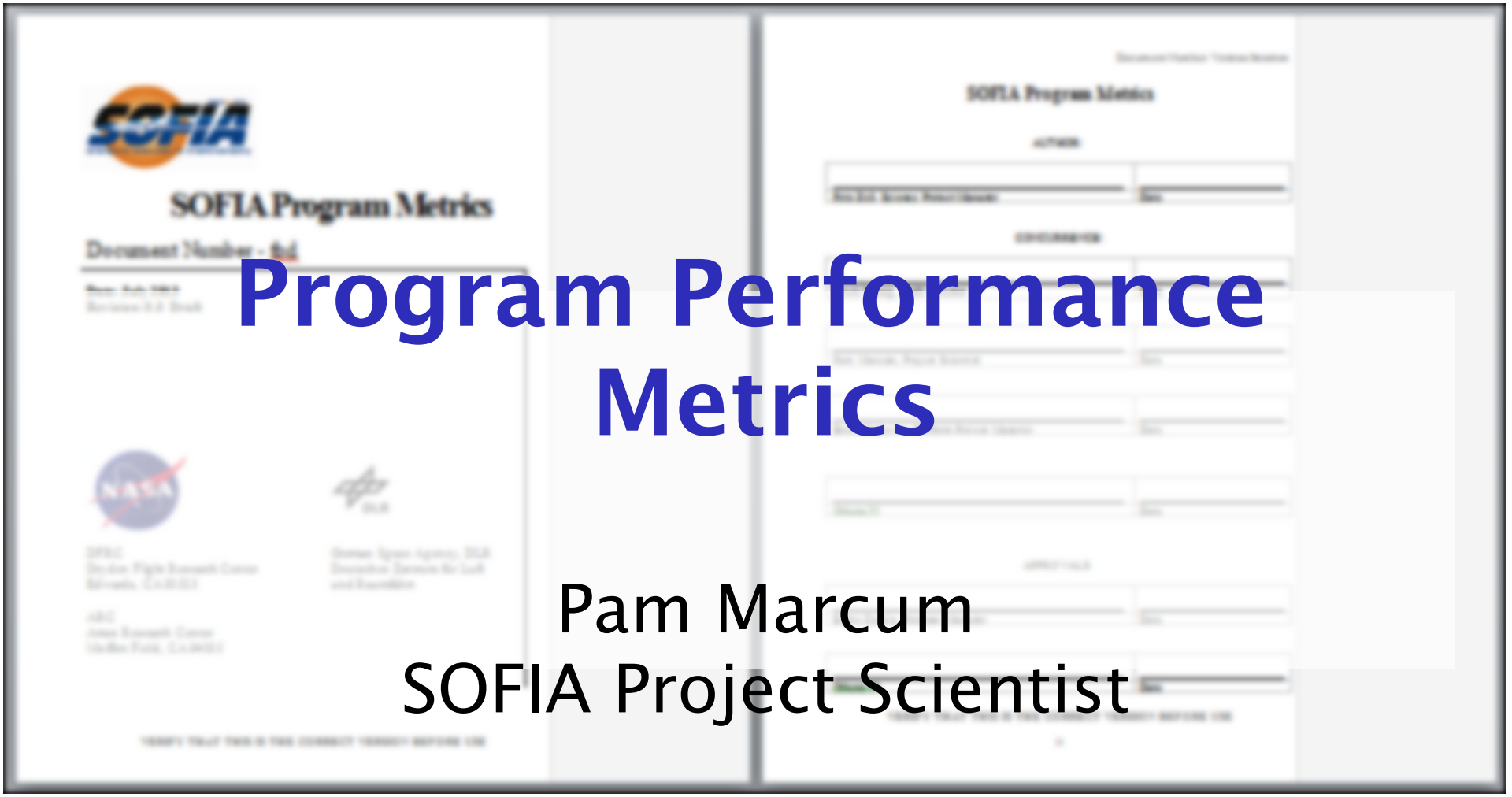


Program Performance Metrics

Pam Marcum
SOFIA Project Scientist

Areas Covered

- Time Spent On Data Collection
- Science Center Productivity
- Data Collection-To-Archival
- Safety and Mission Assurance
- Observatory Technical Performance
- Education and Public Outreach

Time Spent On Data Collection

- Number of hours spent in various readiness states:
  - Hours for which Observatory is “all systems go”
    (must meet 960 hours by FOC+4 years)
  - Hours for which telescope is pointed on-source
    (must be 80% of the above)
  - Hours spent collecting photons
    (must be 85% of the time pointed on-source)

- Several statistics capture reasons for any lost hours that would impact above metrics, such as hours lost due to:
  - Mission ops or aircrew scheduling issues
  - Airborne system hardware or software issues
  - Science instrument hardware, software or team scheduling
  - Telescope-specific hardware or software issues
  - Overruns of planned maintenance/upgrade schedule windows

Science Center Productivity

- Proposal statistics
  - U.S. and German over-subscription rates
  - Percent of first-time proposers

- Data Quality and Publishability statistics
  - Number of accepted science papers using SOFIA data
  - Amount of data (TB) downloaded from the archive annually

- Science Center Responsiveness
  - Observer Feedback Survey scores
  - Help Desk productivity (average response time, number of tickets, etc)
  - Percent of accepted proposals receiving all awarded observing time

Data Collection-To-Archival

- Timelines for data ingestion
  - Access to quick-look raw science and housekeeping data
    (3 hours, 95% of time, following conclusion of flight)
  - Processed science data availability
    (14 days following completion of associated flight series)
  - Public release of raw+processed data products
    (1 year)

Safety and Mission Assurance

- Hours lost to injuries
- Number of tickets generated or closed
- Number of procedure waivers initiated and granted
- Number of staff in the “yellow” or “red” fatigue categories

Observatory Performance

- Performance characterization, including:
  - Boresight pointing accuracy
  - Relative pointing accuracy
- Performance metrics (measurements to be compared to requirement values), including:
  - Pointing stability

    Not to exceed 0.4” (radial rms)
  - Pointing drift

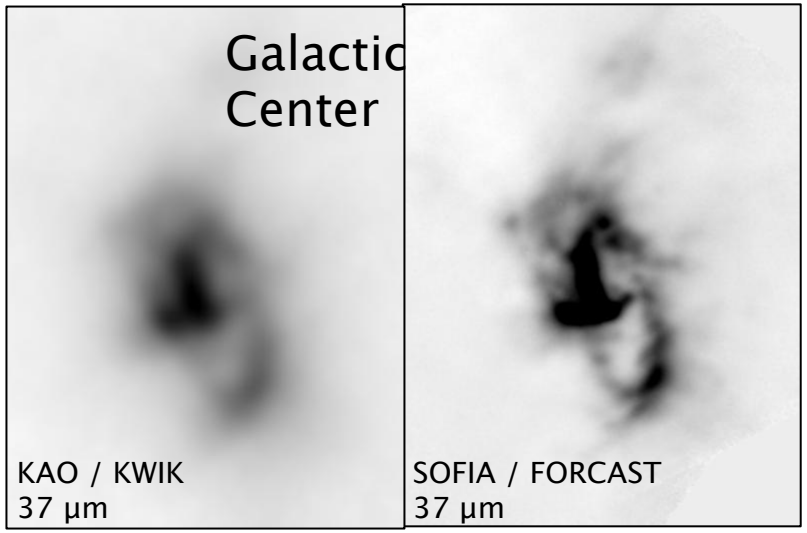
    Not to exceed 0.2” per hour
  - Commanded pointing accuracy

    Not to exceed 0.3” (radial rms)
  - Image size 7 shape

    Diffraction-limited at 20 μm with no more than 0.2 ellipticitiy (1-b/a)
  - System emissivity

    Not to exceed 14.5% (8.45-8.75 μm) - 5% above fresh-coat emissivity value
  - System polarization

    Not to exceed 4% (40-300 μm), with no more than 0.4% variation over the FOV, and no more than 0.4% temporal variation over 2 month period



Education and Public Outreach

- Number of educators and media representatives flown
- Number of educators, students, public reached by in-person presentations through classroom visits, conferences, and events with SOFIA participation
- Number of media stories, website visits, FaceBook "likes", Twitter "followers"
- Number of image and science news releases