

Project Name:		
OBS10-007C: Data Reduction Software for Flamingos 2		
Business objective served by this project		
Provide astronomers and Principal Investigators with the essential data reduction tools for Flamingos 2		
Project Manager/Leader:	Project Sponsor:	PDS Version/Date:
Kathleen Labrie	Andy Adamson	20 October 2010

## Project Description

### Issue Statement:

The objective is to first ensure that the data reduction tools developed from the existing CL scripts is adequate for a standard science reduction. This is just a safety net in case we need something fast and the Python software is not ready yet. This work is mostly done and should only need testing with real data. The real project is to implement the Python-based suite and the user interface. There are two development iterations each including: design, development, testing, documentation. It is expected that the design for the first iteration will be completed in 2010. The actual release of the software will be done as part of the operation project for data reduction and it is not resources here.

### Project Objective Statement (POS):

- Ensure that the users are able to reduce their Flamingos 2 data by the time of Science Verification.
- Ensure that the data reduction tools developed from the existing CL scripts are adequate for a standard science reduction.
- Provide a robust Python-based data reduction suite with user interface and documentation.
- Provide data reduction tools to handle the most difficult part of the data reduction process, the steps that require specialized knowledge of the instrument's characteristics and behaviors.

### Project Flexibility:

Flexibility Matrix	Least Flexible	Moderately Flexible	Most Flexible
Scope			<b>x</b>
Schedule		<b>x</b>	
Resources	<b>x</b>		

### Major Deliverables:

- 2011 -> CL-only scripts providing basic data reduction tools for Imaging, Longslit, and MOS modes.
- 2011 -> Basic tools for a Python-based F2 data reduction suite, including documentation.
- 2012+ -> More advanced tools for the later or more complicated stages of the data reduction process.

### Assumptions:

- The design for the first iteration will be completed in 2010.
- The science commissioning team will provide complete sets of data for testing and development purposes for the Imaging, Longslit, and MOS modes as soon as they are available.
- The science commissioning team will be available to provide scientific expertise to the programmer.

### IS and IS NOT:

Describe what the project **is** and what the project **is not**, you can have as many **is** or **is not** as you want.

- **IS:** a scientifically valid software suite to reduce Flamingos 2 data.
- **IS:** a part of the data reduction software package that is released to users of Gemini.
- **IS:**
- **IS NOT:** a replacement for IRAF
- **IS NOT:** a QA pipeline
- **IS NOT:** a data analysis package
- 

## Strategy and Resources

### Milestones and Stages:

- Commissioning - CL-only code
  - Patch release of Gemini IRAF with post-commissioning support for F2 (Imaging, Longslit, MOS)
  - Acquisition script
- Iteration #1A (2011)
  - Python-based (might use IRAF) data reduction tools for the early stages of the data reduction. Includes: linearity correction, dark correction, sky subtraction (offset to sky), flat fielding, response function, wavelength calibration, MOS handling, 1D extraction.
  - Intergration of Python suite into Gemini IRAF package and gemini\_python.
- Iteration #1B (2012)
  - Registration and stacking features added to data reduction suite.
- Iteration #2 (2012+)
  - Python-based (might use IRAF) data reduction tools for the later or more complicated stages of the data reduction. Includes: sky subtraction (along the slit), slit function correction, WCS and astrometry, photometric scaling and calibration, and other TBD from design.

### Estimated Costs:

#### 2011

- Resources : DPD: 1.48 FTE ; AST: 0.07 FTE; DAS: 0.01 FTE

#### 2012+

- Resources : These are only approximations. DPD: 2.08 FTE ; AST: 0.14 FTE ; DAS: 0.05 FTE

### Core Team Members(see Guidelines for Developing New Projects document):

- Project Manager: Kathleen Labrie
- Project Scientist: James Turner
- Systems Engineer: N/A

### Extended Core Team Members:

(DPDs preferably at Gemini South)

- Emma Hogan
- Nelson Zarate
- Astronomer: Percy Gomez and/or alternate TBD
- Data Analysis Specialist: TBD

### Dependencies that require coordination:

- Requires engineering data for Imaging, Longslit, MOS, as soon as they are available
- Requires real on-sky sequences on bright targets, with full calibration data sets, as soon as they are available. This applies to Imaging, Longslit and MOS modes.

**Risks and Issues:**

- Resources with proper expertise not available because called to work on other projects.
- Key team member leaving the group.
- Processing of MOS data being more difficult than expected. We have received so little data and information, we are still quite a bit in the dark.
- Design for first iteration not completed in 2010.

**Supplemental Resources:**