Gemini Program Platform Demo and Testing

Gemini Science Meeting - July 2022

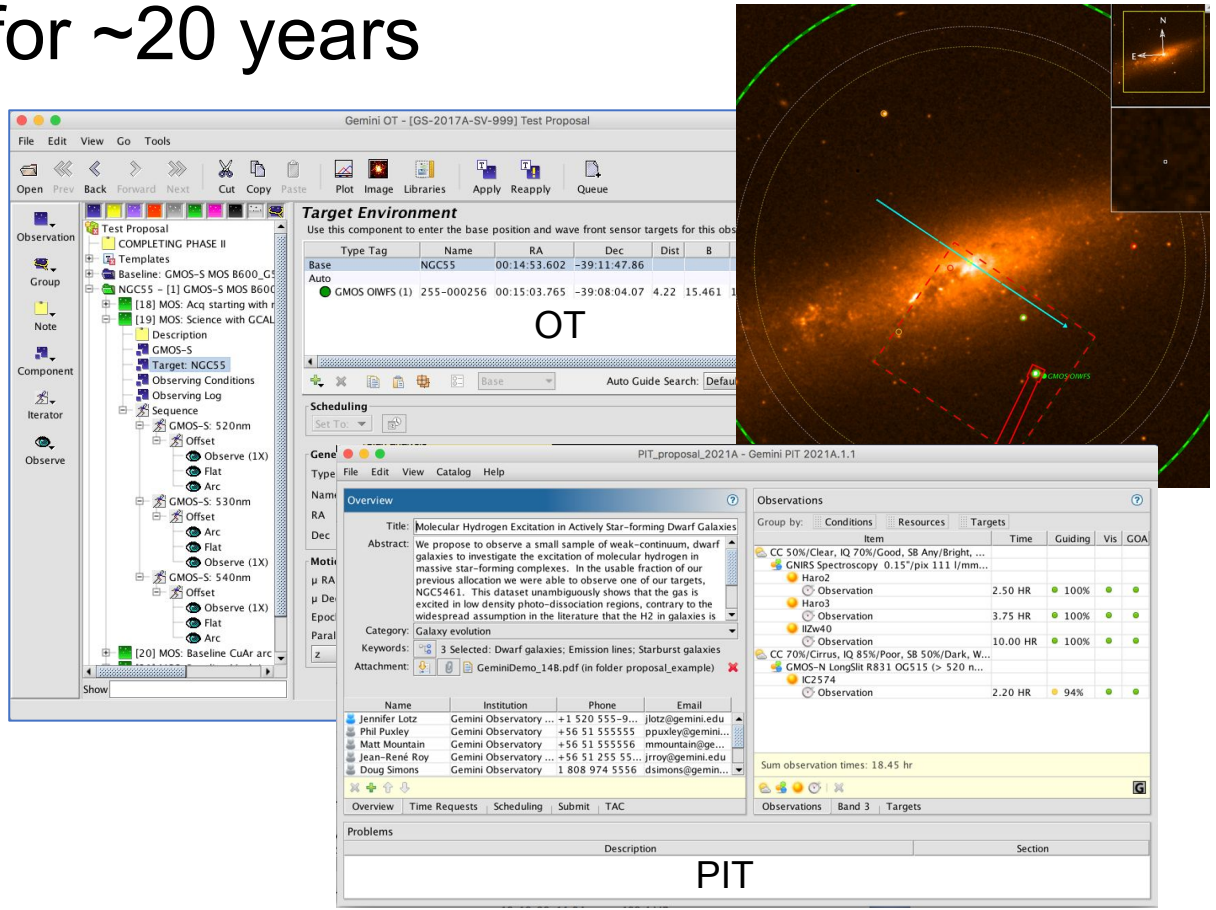
The current proposal and program preparation apps have been in use for ~20 years

Phase I Tool (PIT) - proposal submission

Observing Tool (OT) - Observation preparation, execution, time accounting

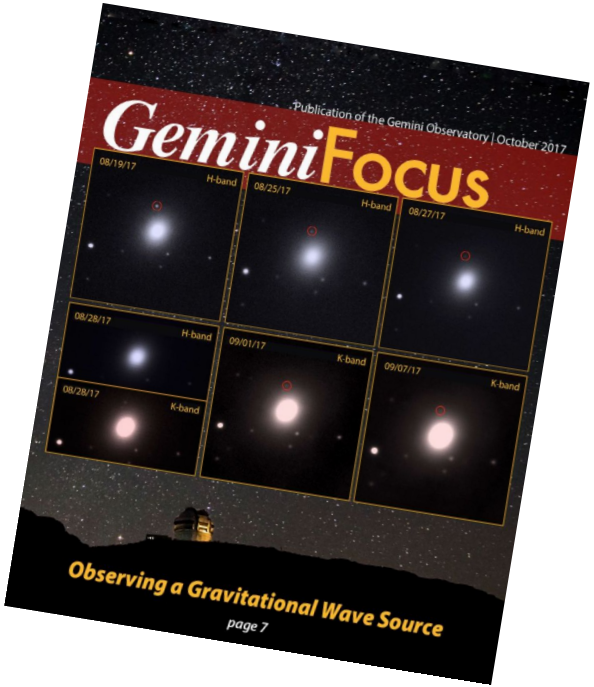
Many needed usability and infrastructure changes cannot be done with the current software.

→ Time to start fresh



The Gemini Program Platform (GPP) is the core of a new OCS with the following goals:

- **Improve usability** - make proposal and Phase 2 preparation much easier
- **Improve efficiency** - improve flexibility and reduce user/staff workload via automation
- **Support Time Domain Astronomy (TDA)** - provide the software framework for the GEMMA scheduler and APIs (e.g. AEON)
- **Support new instruments/systems** - e.g. SCORPIO and GNAO
- **Avoid obsolescence** - make the code maintainable and scalable



See Oct 2017 Gemini Focus, p.20
Update in Jan 2021 NOIRLab Mirror

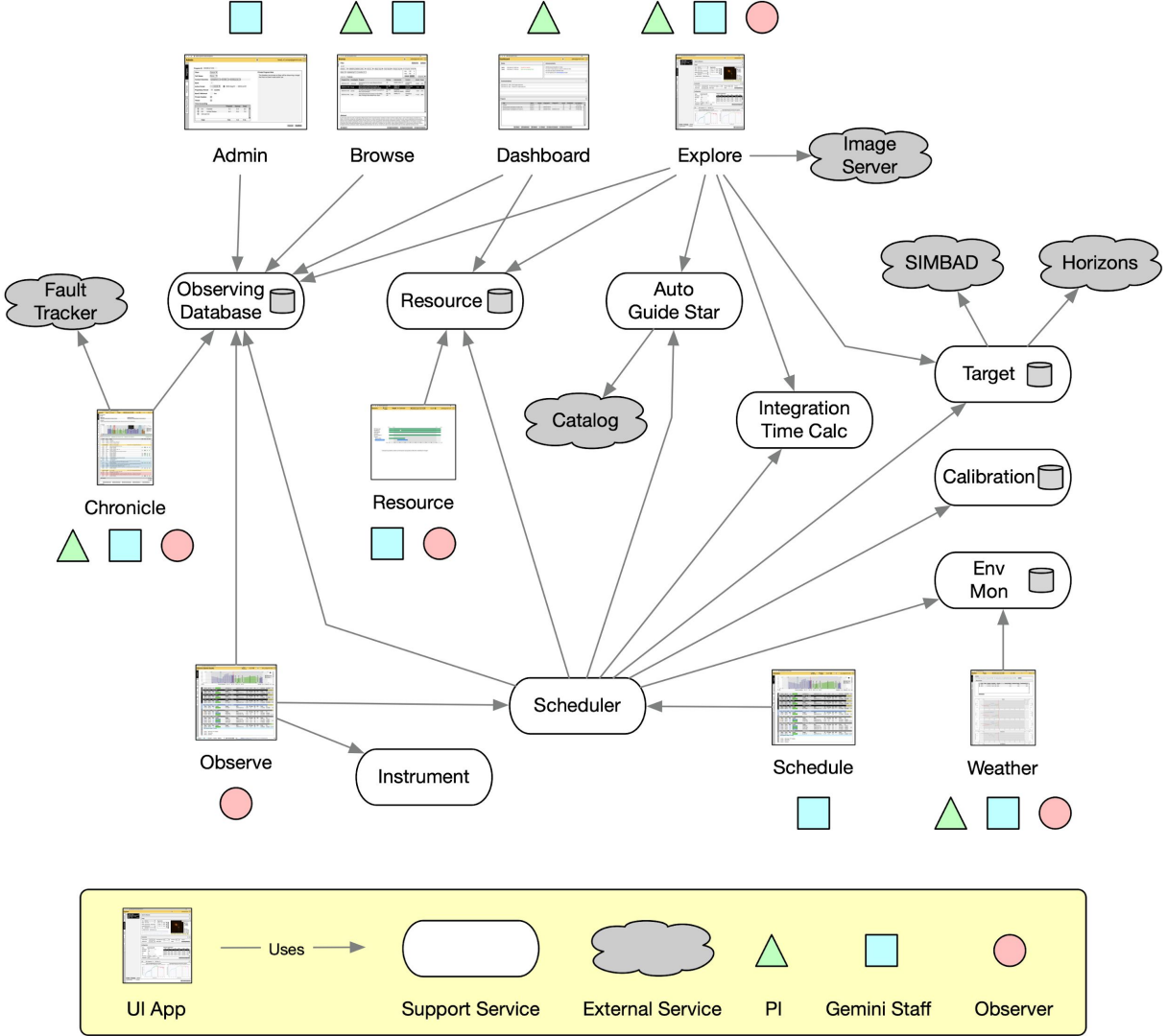
Web Applications

External: ▲

- Explore
- Dashboard
- Browse
- Chronicle
- Weather

Internal:

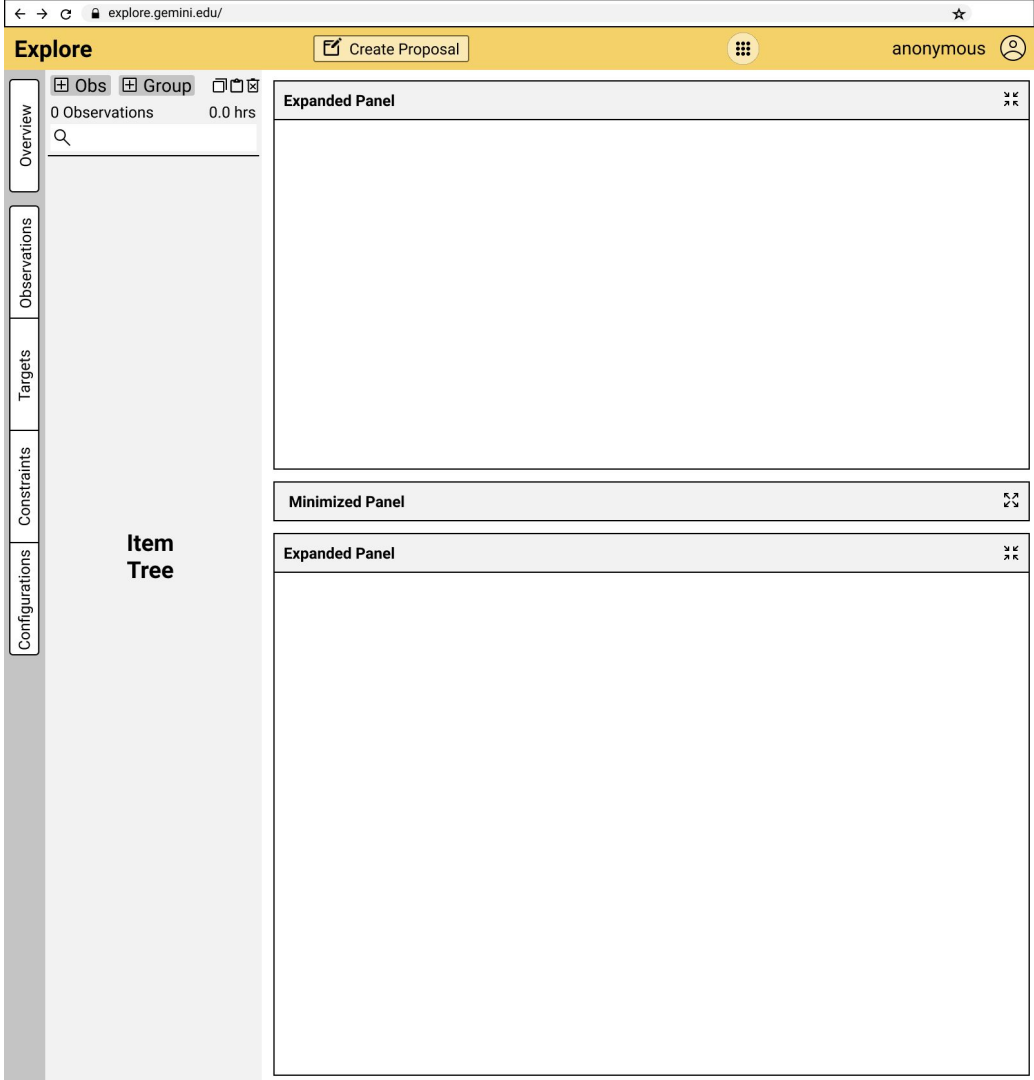
- Observe
- Resource
- Schedule
- Admin



Explore

Layout

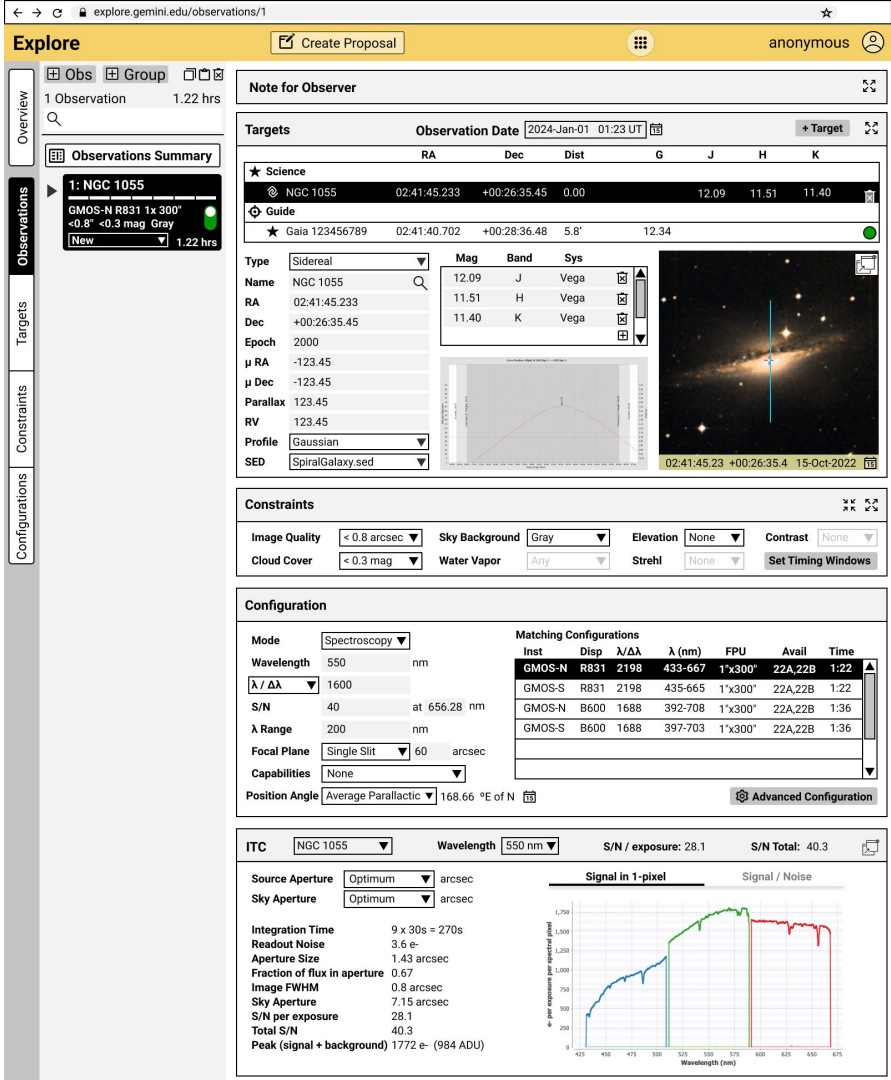
- Application Switcher
- User Identity & Authentication
- Vertical Navigation Bar
- Item Tree
- Detail Panels
- Action buttons
- Observation Summary
- Search
- Create Proposal button



Observations View

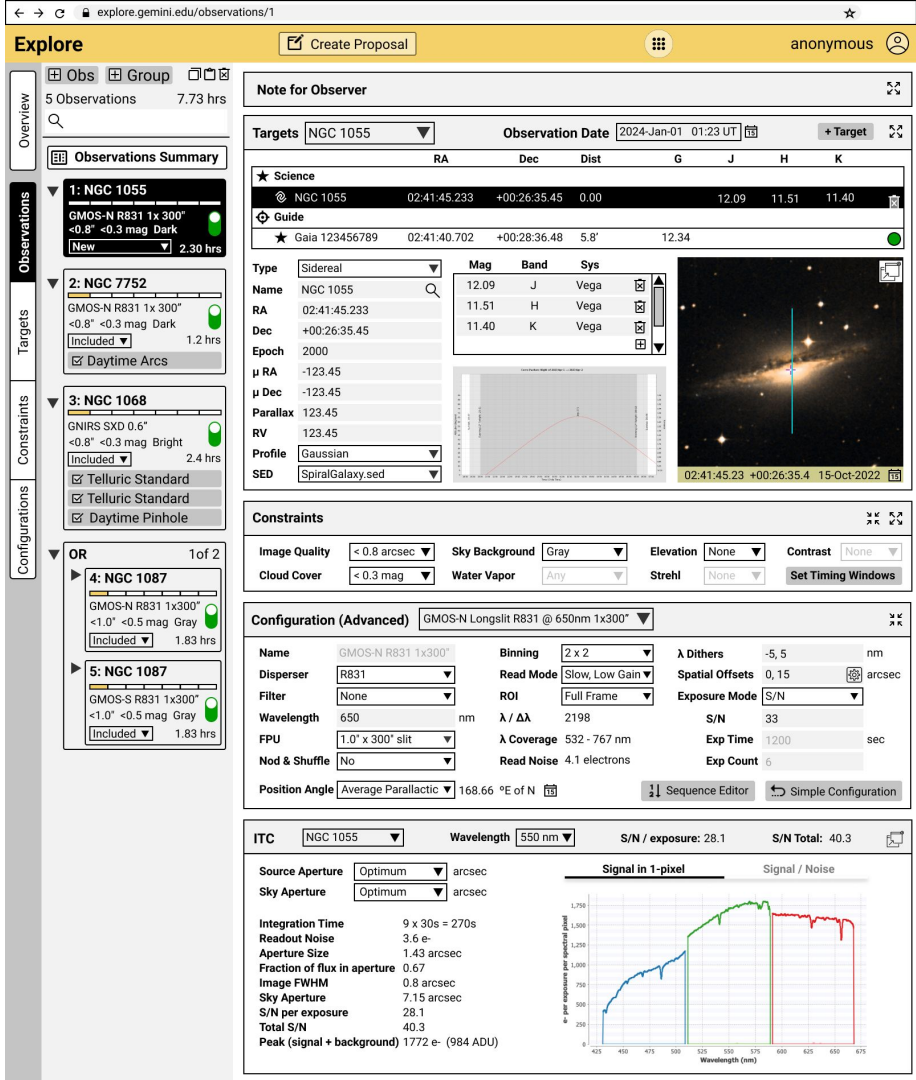
A single screen shows all the important information:

- List of all observations
- Target details
- Constraints
- Instrument configuration
- ITC output



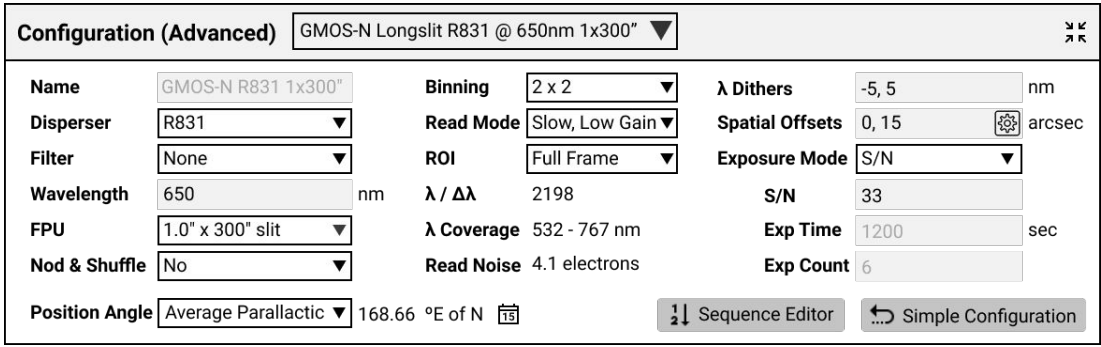
Observations View

- Observations includes required calibrations
- OR group (GMOS North or South)
- Advanced Configuration



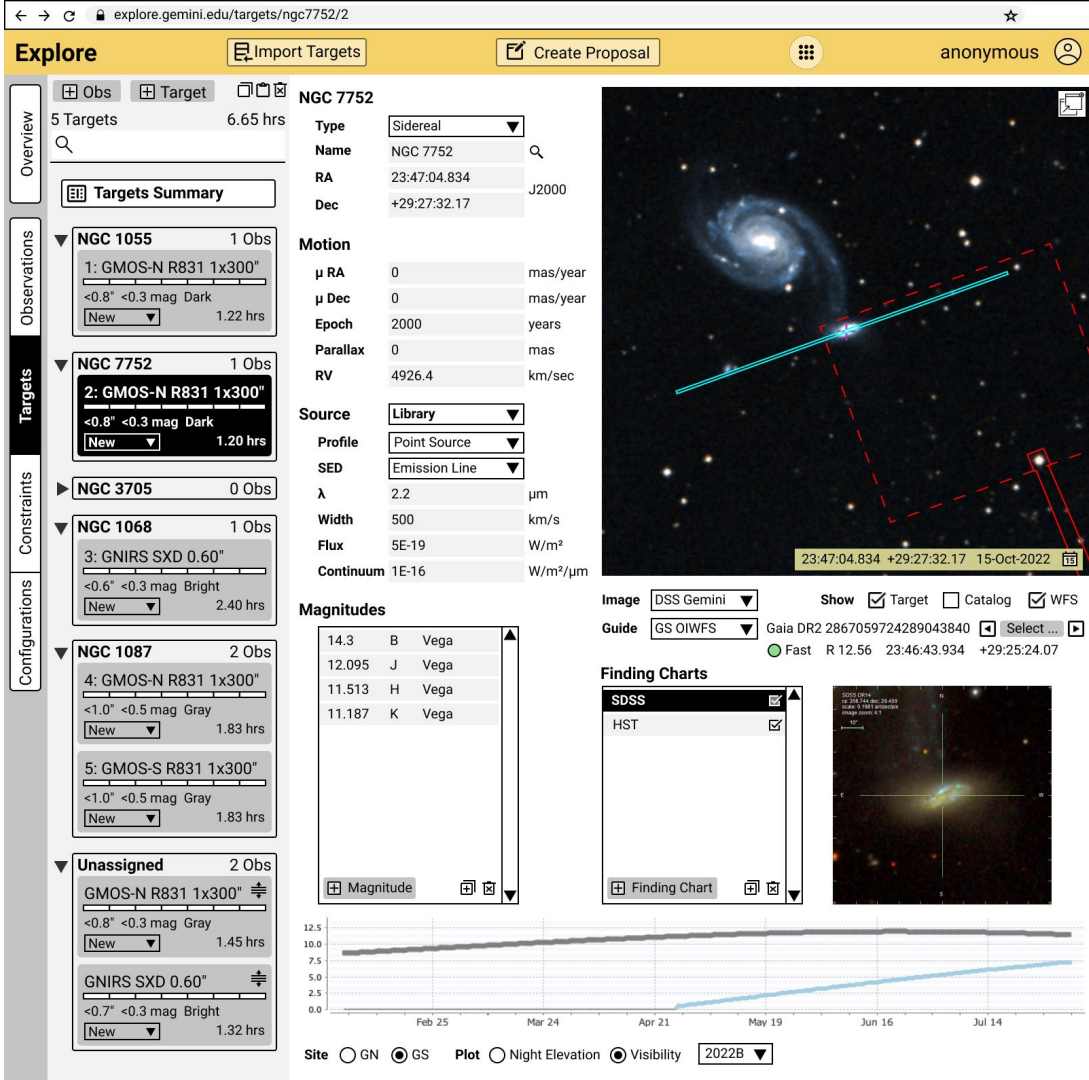
Observations View: Configuration (Advanced)

- Customize instrument parameters
- Modify default wavelength dithers and spatial offsets
- Exposure Modes
  - S/N
  - Exposure Time
  - Exposure Count
  - Time & Count



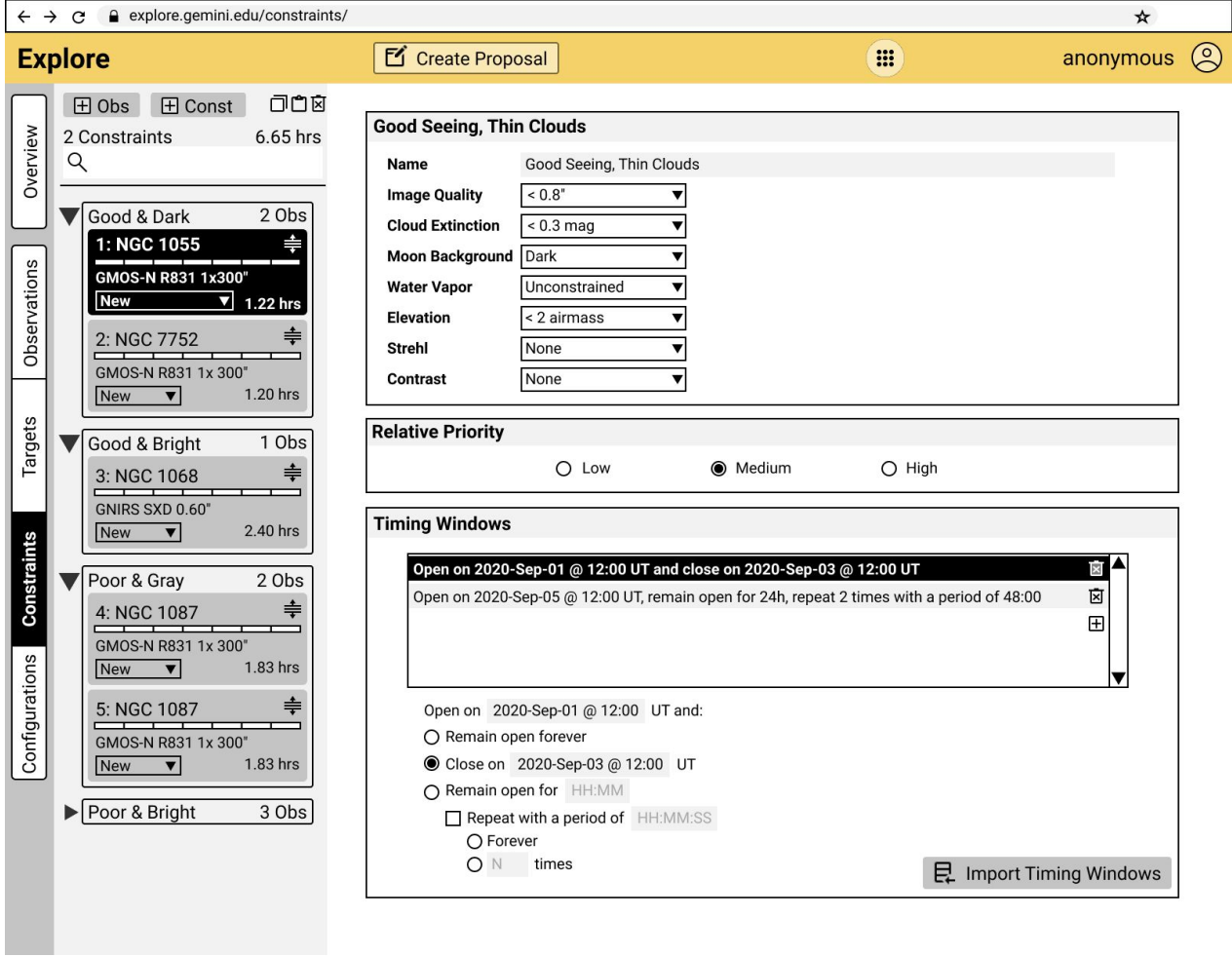
Targets View

- Shows observations grouped by target
- Bulk-edit targets (shared)
- Import target lists
- Copy observations
- Drag & drop of observations between targets



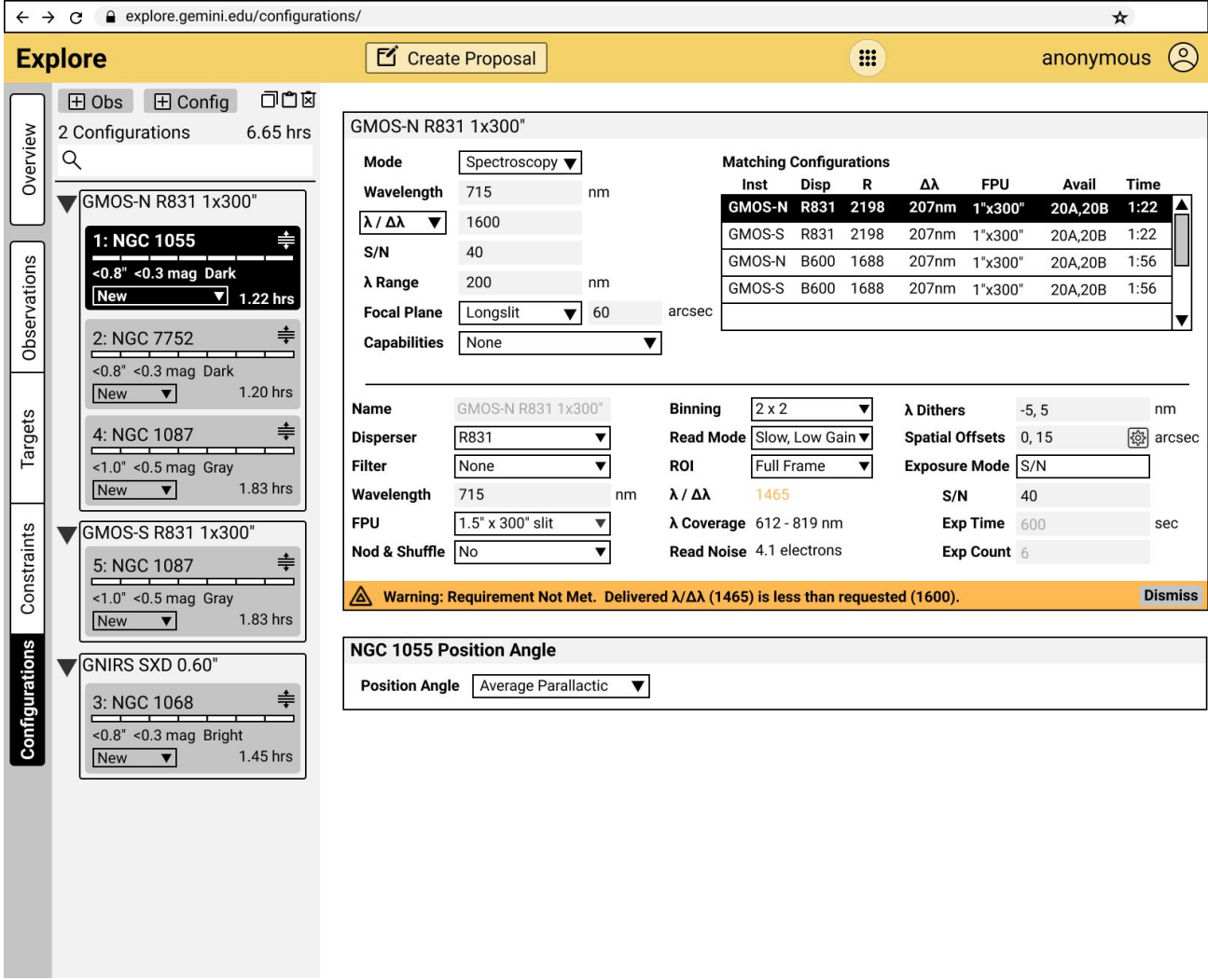
Constraints View

- Shows observations grouped by constraints
- Bulk-edit constraints
- Drag & drop observations between constraints
- Import timing windows
- Copy observations



Configurations View

- Bulk-edit configurations
- Drag & Drop observations between configurations



Authentication

Goals:

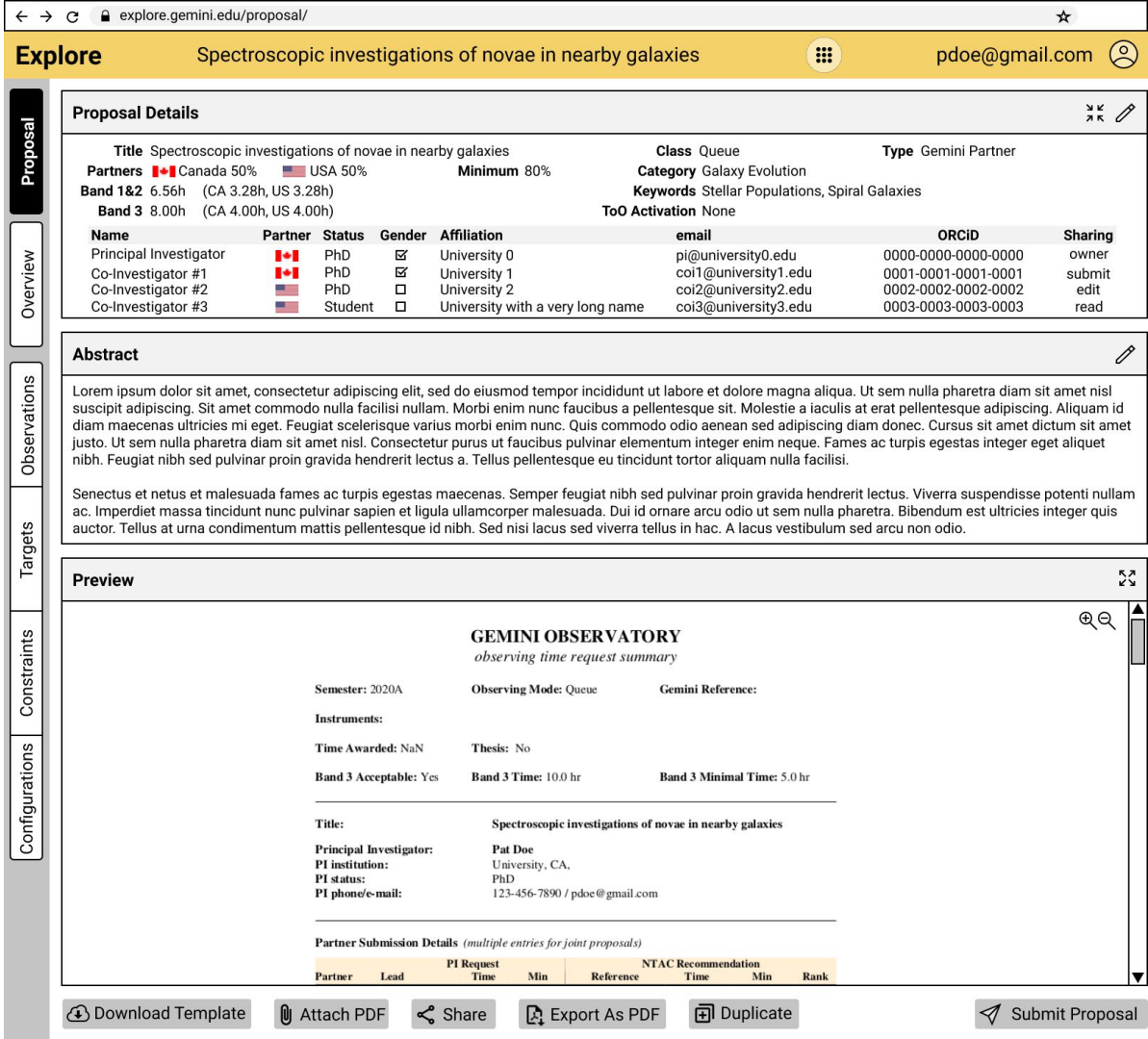
- Users gain access to all proposals/programs to which they are entitled
- Avoid managing individual's email addresses and affiliations
- Help track publications based on each program

ORCiD

- Required for AAS journal submission
- Free, easy to obtain, unique to an individual
  - https://orchid.org
- Keeps current email addresses and affiliations in sync

Proposal View

- Investigator details
- Enter abstract
- Request details
- Attach PDF templates
- Share and collaborate
- Export PDF
- Duplicate proposal
- Submit or retract proposal

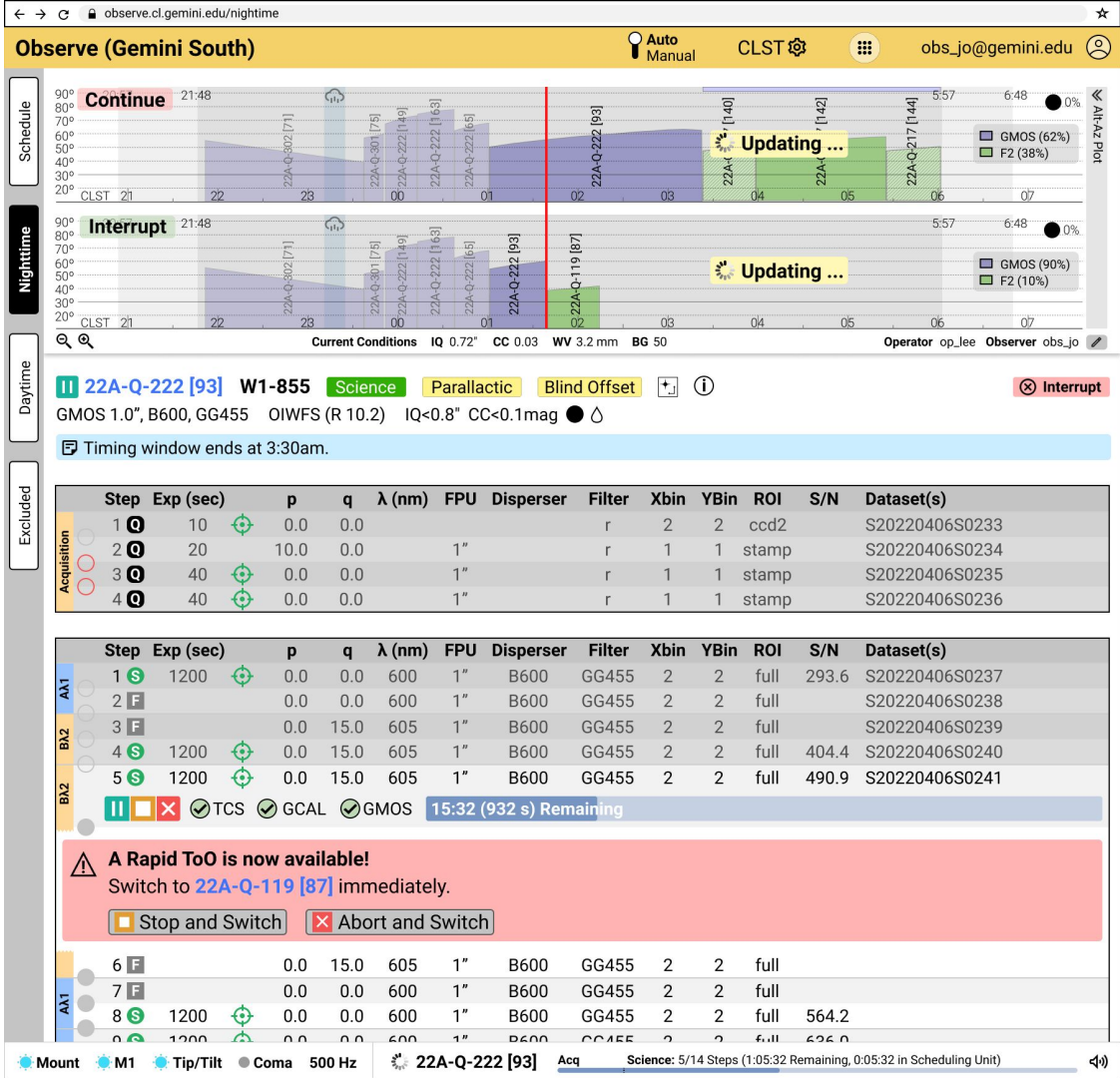


Explore Demo

Observe

Observation execution

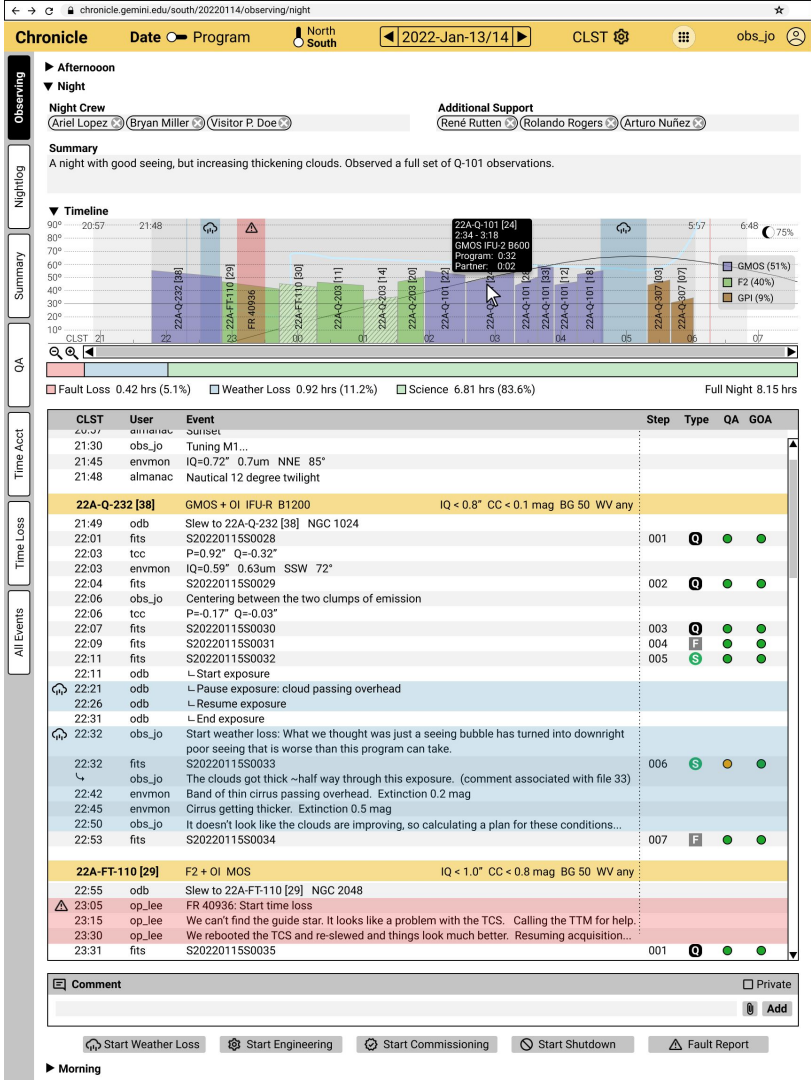
- Interfaces with automated real-time scheduler
- Suggests observations when conditions change or new observations become available (ToOs)
- Gives instructions on how to best interrupt observations



Chronicle

Logging

- Night and Observing logs
- Dataset comments
- Data quality assessment
- Program time accounting
- Automatic logging of observing actions, weather, faults, etc.
- View details by night or by program
- Communication between day & night staff



GPP Project Timeline

- **Chronicle** development planned for October 2022 through June 2023
- **Explore/Observe** full support for GMOS long-slit spectroscopy by September 2023, then start adding other instruments & modes.
- **XT1** with GMOS at the end of January 2024 (23B/24A)
  - Special call for proposals
- **XT2** during 2024/2025 as more instruments are supported
  - Convert some existing programs
- **Project completion** estimated by June 2025*

* Rubin operations start mid-2024 with the alert stream in early 2025
Inception Review Docs: http://software.gemini.edu/ocsupgrades/GPP_Inception_Review/

We are slowly ramping up community testing, this session being one example

Early testing will include:

- Filling in questionnaires on features and usability
- Mock use sessions
- Interviews
- Quantitative use tests (timed activities with old/new systems)

Let us know if you are interested in participating in more tests.

andrew.stephens@noirlab.edu

bryan.miller@noirlab.edu

Interactive Use and Testing

Explore: https://explore.gemini.edu
Instructions for activities: https://bit.ly/gsm22gppworkshop
Feedback spreadsheet: https://bit.ly/gsm22gppfeedback

Instructions

You may try out Explore at https://explore.gemini.edu

Feedback can be entered here

https://bit.ly/gsm22gppfeedback

You may upvote other's suggestions.

We are especially interested in bug reports and comments about the usability of the existing features.

New feature suggestions are welcome, but realize that many planned capabilities are not implemented yet.

Suggested Activities

- Create a program for your work
  - Note that currently everyone can see all programs
  - All work will be deleted within 24 hours when the Heroku “dynos” reset (work will become persistent once we have the real database in the backend)
- If you have an ORCID, use yours to log in.
- Create observations for the same target for north and south
  - Edit the constraints for both together
  - Change the constraints for a single observation
  - Edit the target information for both, then edit the target for just observation
- Find and view the automatically-generated sequence
  - Review how this changes as configurations, constraints, or target properties are updated

Timed Activity

Time how long it takes you to do create the following observation:

- HII Region in IC 2574 (10:28:50.8 +68:25:24.7)
- R = 20 AB
- Gaussian profile, FWHM = 5 arcsec
- SED: HII region
- IQ: 1.5 arcsec, CC <= 0.3 mag
- Spectroscopy
  - PA fixed at 0 deg
  - Wavelength = 0.85 um
  - Resolving power: 2500
  - S/N = 100