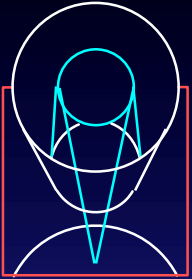


Astronomer's Proposal Tools

April 20, 2001

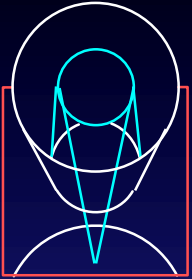
Steve Lubow

ESS



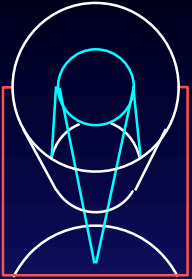
Scientist's Expert Assistant

- ❖ Scientist's Expert Assistant (SEA) began in 1997 and produced a prototype for next generation proposal tools for HST.
- ❖ Collaboration of the Advanced Architectures and Automation Branch at GSFC and STScI. Overall goal is a generic proposal preparation system across observatories.
- ❖ Astronomer's Proposal Tools (APT) uses SEA as a starting point.
- ❖ But, SEA does not generate a proposal.



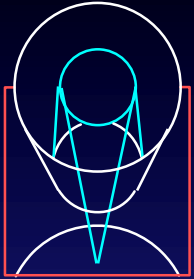
Limitation of RPS2

- ❖ Lack of powerful tools, such as visualization tools and spreadsheets.
- ❖ Slow speed for iterating (especially for packing orbits).
- ❖ Lack of tool integration (user needs to copy results from Exposure Time Calculator into proposal).
- ❖ Old fashioned look and feel (e.g., PED).



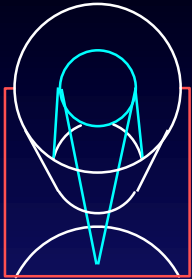
General Goals

- ❖ Intuitive, visual, interactive experience.
- ❖ State of the art tools.
- ❖ Complete and integrated system for proposal preparation - replace RPS2.
- ❖ Target small to medium size proposals. Allow for large proposals.
- ❖ Get tools to users fast.
- ❖ Share tools with other observatories.
- ❖ Support Phase 1 and Phase 2.
- ❖ Backward compatibility



Organization

- ❖ Development group and user group work together in small teams.
- ❖ Project scientist for each tool works with a small team of developers.
- ❖ Project scientist determines requirements and consults science staff as needed.
- ❖ Several tools being developed in parallel.
- ❖ Iterative Prototyping approach.



APT Technical Components

Phase 1 Support

Phase 1 Proposal Editor
Duplication Checker Tool (Starview2)
Resource Estimator Tool

Phase 2 Support

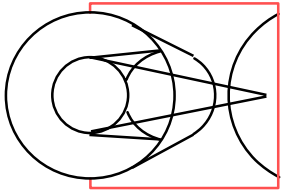
Phase 2 Program Editor
Orbit Planner Tool (TransVerse)
Visit Planner Tool (Spike)
Bright Object Tool
RPS2 File Conversion Tool
Guide Star Tool

Observer

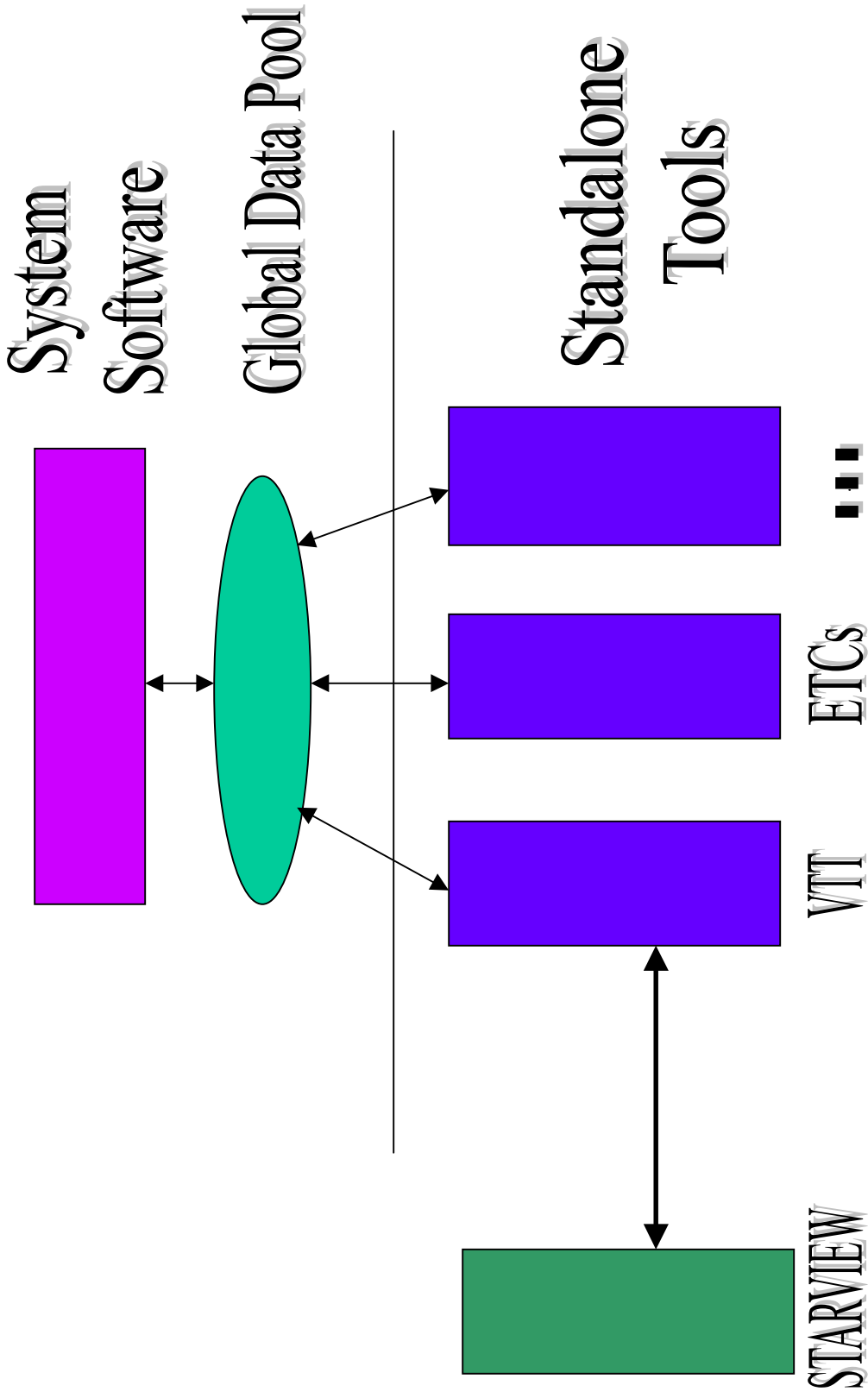


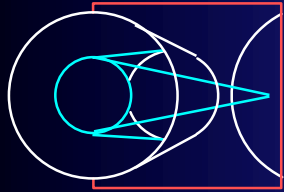
Generic Support

Visual Target Tuner Tool
Exposure Time Calculator Tool
Submission Tool
Observatory Constraint Manager Tool
Archival Research Tool (Starview2)
Top Level GUI & Architecture



APT Architecture





File Edit Target-Select Image-Tools Catalogs Apertures Window Help

Help DSS Negative Apertur... Fiducia... FOV Catalogs Grid

Object Details

MESSIER 101:[WIP99] H33

Type: Object of unknown nature
RA: 14 03 33.2
Dec: +54 17 59.0
Equinox: J2000
Epoch: 2000.0
Uncertainty: 8.0 x 8.0 arcsec
Source: NED
Magnitude: 20.26 (V)
Galactic Extinction (B mag): 0.0
Reference: 1999ApJ...523..121W

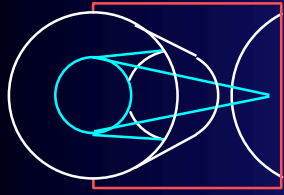
Identifiers: (2)
MESSIER 101:[WIP99] H33
MESSIER 101:[WIP99] H33 ID

[Search the ADS for abstracts](#)

RA: 14 03 33.15 Dec: +54 17 58.97

Orientation...

288.0, 310.0 4552 14 03 59.18, +54 14 32.24



VTT with Flagged Objects

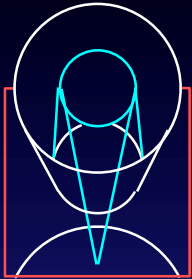
Target Tuner [8.0X]

File Edit TargetSelect ImageTools Catalogs Observations Window Help

Help DSS Negati... Apertu... Fiducia... Labels FOV Catalog... Grid Bright...

RA: 18 44 59.0 Dec: +00 35 32.0 Orientation...

492.6, 565.7 5388 18 45 3.22, +00 36 33.5

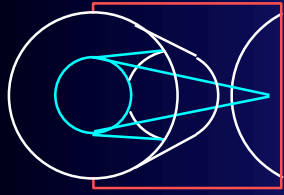


StarView and SV/VTT

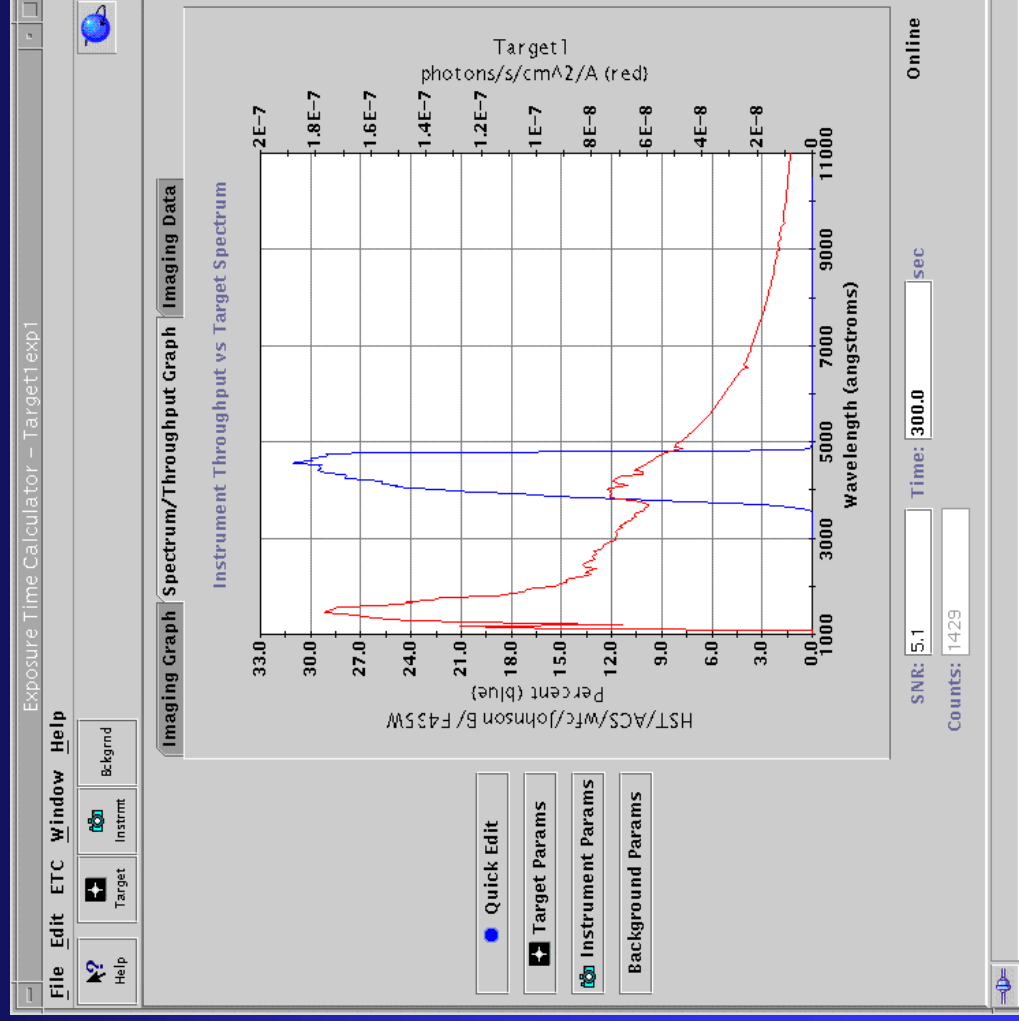
- ❖ StarView as the archive tool for APT.
- ❖ VTT can be selected as a graphic interface to StarView.
- ❖ JIPA still usable for those not needing VTT (smaller memory footprint).

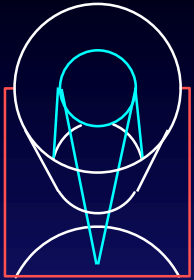
The screenshot displays the StarView software interface, which is used for searching and analyzing astronomical data. The interface is divided into several sections:

- Search Results:** A table showing search results with columns for Label, Qualification, Database Field Name, and Target Name. The table contains several rows of data, including labels like '0118', '11.56', and '11.56', and target names like 'J1156-1434' and 'J1156-1434'.
- Target Information:** A section below the search results providing details for a specific target, including its name, coordinates, and other parameters.
- Target Image:** A large image showing a target galaxy or star system, with several blue rectangular boxes overlaid on it, indicating regions of interest or search areas.



Target Spectrum & Filter Throughput Graph





APT Feedback

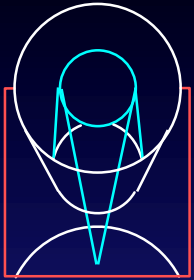
❖ VTT Feedback

- The recurrent theme is: “I like this tool. It needs improvements, but I like this tool enough to spend the time to help you make it even better.”
 - ❖ “I am struggling a bit with VTT. It is a nice tool (how did HST observers do this before it was available?!!) but it takes a bit of practice.”
 - ❖ “Below are the things that went wrong or that I think can be improved. Although the list is long, I’m extremely positive about the VTT. You did a wonderful job.”
 - ❖ “I worked with VTT yesterday and I can provide some feedback. Most of this will be complaining so I should start with a congratulations to those responsible for VTT. It will be very useful to me and I like it a lot! The ability to visualize and adjust the slit placement alone is a good reason to use it for phase 2. With all of the other features, it will continue to be a great research tool after phase 2 is over!”

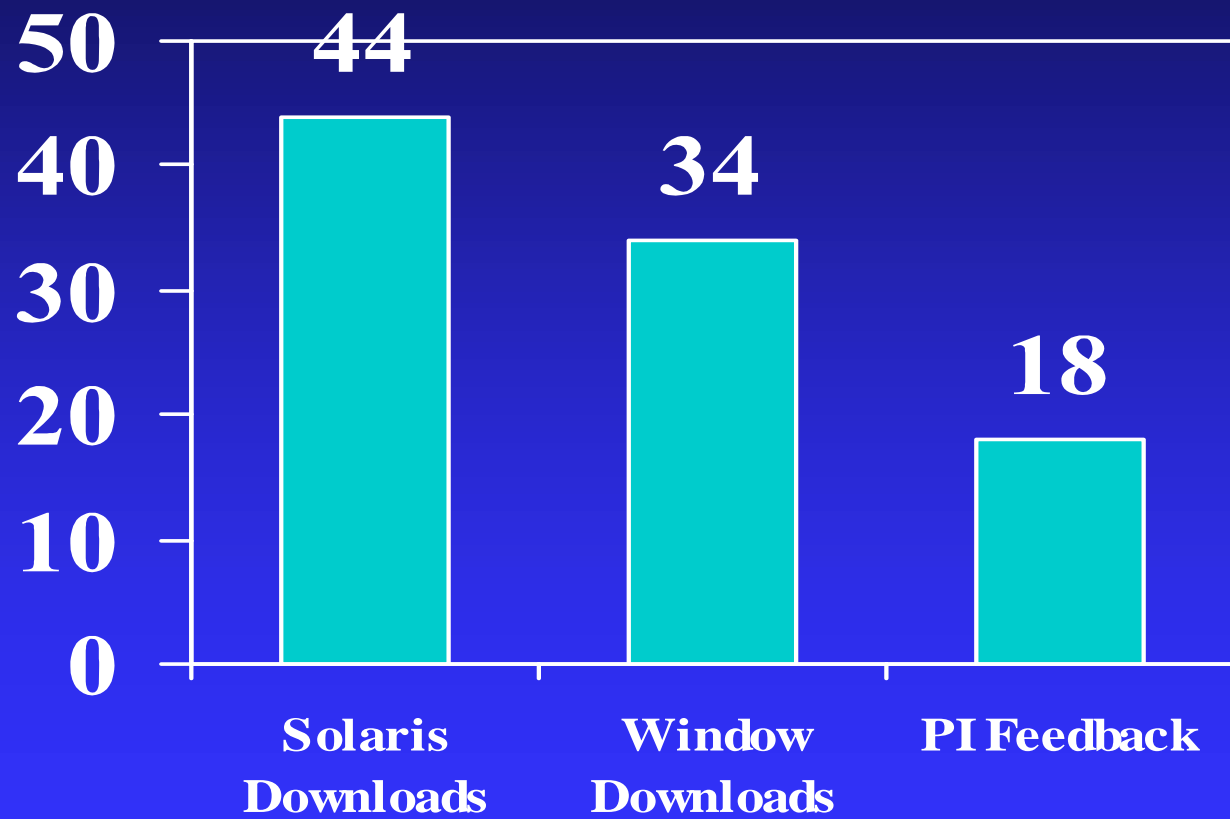
❖ No ACS ETC Feedback

❖ PI Bright Object Feedback

- 3 of 4 STIS MAMA PIs responded. Seem to find it useful and easy to use. Consistent problem was interpretation of the results. Easily Fixed.



APT Statistics



APT Phase 2 GUI

Astronomer's Proposal Tools

File Edit View Help Phase Apply

VTT ETC

- Proposals
 - Proposal 8001
 - Proposal 8321
 - Description
 - Targets
 - Targ 1 NGC4151
 - <new target>
 - Patterns
 - Visits
 - Visit 1
 - Exp 1 (NGC4151)
 - Exp 2 (NGC4151, Pattern 1)
 - Exp 3 (NGC4151)
 - <new exposure>
 - <new visit>
- Template Library
 - Target Templates
 - Pattern Templates
 - Visit Templates
 - Exposure Templates
 - VTT Observation Templates
 - ETC Observation Templates

Exposure Time Calculator – Target1 exp1

File Edit ETC Window Help

Target Tuner [1.OX]

File Edit TargetSelect ImageTools Catalogs Observations Window Help

RA: 12 10 32.65 Dec: +39 24 19.92

Orientation...

535.0, 583.0 6737 12 10 31.94, +39 25 50.99

Input Graph

18000

666 Online

Submit

Global Checker

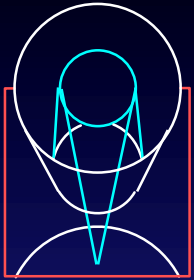
Visit Planner

Orbit Planner

Editor

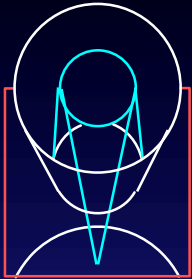
Submit

Prop	Visit	Exp	Target	Config	ACS/w/FC	ACS/w/FC	ACCUM	w/FC1	w/FC1	Aperture	Sp_Eleme...	Wavel...	Op Parm	Iterati...	Exp Time	Spec Req	Comments
8321	1	1	NGC4151		ACS/w/FC	ACCUM	w/FC1	F775w	F892N					1	305		Expected S/N=200
8321	1	2	NGC4151		ACS/w/FC	ACCUM	w/FC1	F892N	CR-SPLIT=...				CR-SPLIT=...	1	2005	Pattern 1 2	



Performance Recommendations

- ❖ System will be supported on Sun/Unix and Windows/NT.
- ❖ Sun: Solaris 2.5.1 on Sun Ultra 1
- ❖ PCs: Windows/NT, 300 Mhz, 64 MB



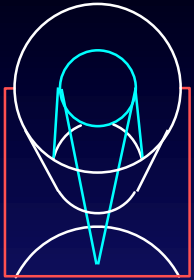
Schedule

TimeLine Tool	Cycle 10 Phase 1 Jun 2000	Cycle 10 Phase 2 Jan 2001	Cycle 11 Phase 1 Jun 2001	Cycle 11 Phase 2 Jan 2002	Cycle 12 Phase 1 Jun 2002	Cycle 12 Phase 2 Jan 2003
Visual Target Tuner	X	X	X	X	X	M
ExpTime Calculator		X	X	X	X	M
Bright Object Tool		X	M	M	M	M
Archival Research			X	M	M	M
Orbit Planner						M
Visit Planner						M
Top Level GUI				X	X	M
Architecture		X	X	X	X	M
Phase 1 Tool					M	M
Help Wizards/Tool Tips		X	X	M	M	M

X – Release doesn't contain all major capabilities (Incremental Release)

M – Contains all major capabilities (Maintenance Mode)

Detailed Schedule <http://apt.stsci.edu>



Near Term Plans

- ❖ Improve VTT usability and add new capabilities for postargs and patterns
- ❖ Release of Starview/VTT in May
- ❖ Release of Bright Object Tool in June
- ❖ Release of improved ACS ETC in June
- ❖ Development of APT Phase 2 tool
- ❖ Design of APT help system