

Astronomer's Proposal Tools (APT) Open Issues Document

Updated May 15, 2001 – Issue 9
Updated March 9, 2001 – Issue 8
Updated Dec 17, 2000 – Issue 7

1. Introduction

This document chronicles Goddard's management and technical issues and APT's responses to those issues. This is a living document that will be updated throughout the life of the project.

2. Issues from the APT technical review held May 22, 2000

Question 1

There is a dependency on the legacy science processing systems. The interface mechanism is not well understood at this time. An alternative approach has been proposed to create simplified models that can be packaged and downloaded to the client workstation and be co-resident with the APT tools. This is a tradeoff between accuracy and complexity. If the users can accept a less accurate model, eliminating the dependency on the legacy systems is highly desirable. A decision point is to be reached next week, and the panel felt this was a key item to address.

Question 1 Response

There are two legacy systems that currently are envisioned for inclusion in the APT tool suite. The Transverse engine calculates orbital visibility and orbital overheads for HST visits/exposures. The Spike engine calculates when visits can be scheduled throughout the year. It is envisioned that Transverse engine will be the engine running behind the Orbit Planner GUI and the Spike engine will run behind the Visit Planner GUI. The GUI and the engine together represent the entire tool. Both of these engines are written in the Lisp Language and will be in separate processes than the APT GUI front end. I will address each engine separately with regard to interfacing APT to them.

Transverse Engine

The Transverse engine currently supports RPS2. It is connected via a socket interface to the TK/TCL GUI and runs in a client server model. This engine must process an entire user proposal at a time. If a user wanted information about one visit, all the visits in the proposal must be processed. This is a restriction of the design of the Transverse engine. The fact that an entire proposal must be processed causes performance hits when the proposal is large. Also users tend to run the program numerous times in RPS2 to try and maximize their orbit visibility.

In May 2000, we did a preliminary study to look at the impact of not using the Transverse engine, but using a less accurate faster engine. We looked at three criteria; performance, accuracy of results, and maintainability. The recommendation of this study was that the Transverse engine could be modified to provide the performance needed by APT. This engine

meets our accuracy requirements, since the engine is used in our ground system operationally. Additionally, this would require maintenance of only one engine, not two. The study recommended that a prototype be implemented with the Transverse engine to evaluate performance and accuracy. In August 2000, the prototype work began and is scheduled to end mid-October 2000. At that time, we plan to look at the results of the prototype from a performance and accuracy point of view and determine whether we should use Transverse or begin looking at an alternative approach. If we use Transverse, the first task will be to evaluate client server architectures to support running Transverse in APT on both the Sun and PC computing environments. We will look at the performance impact of running Transverse locally at a user site and remotely at STScI. We will also look at different interface models, CORBA versus sockets. Our main criteria for evaluation will be performance. If we choose a non-Transverse approach, the client/server and performance issues will go away as we will probably implement the new tool in Java. However, we will have to investigate the accuracy impacts for the end user. This work will be carried out in the Fall 2000 timeframe.

We are planning on applying up to 1.5 FTE of over guide resource in this area, particularly related to the architectural issues.

Spike Engine

The Spike engine is not run as repetitively as the Transverse engine. Performance issues from repetition are not expected. The Spike engine has not been the performance bottleneck in RPS2, so there is no plan to look at alternatives.

The issue with the Spike engine is the same as the Transverse engine. We will look at client server architectures to support both the Sun and PC computing environments. We will look at different interface models, CORBA and sockets. We will look at different support models, where the Spike engine is run locally at a user site or whether the engine will need to run at STScI. This is shared work if the Transverse engine is chosen. Both will use whatever model is chosen for the APT architecture.

Question 2

It is not clear exactly how much rework of the prototype code will be needed to make the system operational. The SEA team spent fair amount of effort to develop this system, and appears that it is reasonably documented and tested. However, the APT team needs to assess the reused code from a performance, reliability, and maintainability standpoint. The risk noted here is that the effort that may be needed for this may not be adequately accounted for in the project effort estimates.

Question 2 Response

Our approach has been to start enhancing and operationally supporting the Visual Target Tuner and ACS Exposure Time Calculator. We have been working with these tools for the past 6 months and have gained valuable knowledge related to the software system. We felt that it would be more prudent to get familiar with the software by working with it for a period of time rather than trying to address these questions up front. Here is our approach for the three areas mentioned and how we have budgeted for this in our schedule.

Performance

Our plan for dealing with performance issues is described below in our response to Technical Question 3 below.

Reliability and Maintainability

We plan to address this incrementally throughout the development of the project. Our development teams have been budgeting overhead time in their schedules to improve maintainability and reliability of the software. As they plan for new enhancements, they have added some overhead to restructure/improve the software from a maintenance point of view. These overheads do not show up as a specific task on the schedule.

We have also discussed some packaging improvements with the SEA group that would help in maintenance and distribution of the software. The SEA group has implemented these features, which we are in the process of incorporating.

We believe that the major risk in this area is not with the individual tools but with the architecture that glues all the tools together. This is linked with technical question 1, related to incorporating STScI legacy systems and scalability. We are applying ~ 1.5 FTE of over guide monies to architecture improvements and incorporating legacy systems. This work is planned to occur in fiscal year 2001.

Question 3

Performance. Early indications are that performance is slow, especially on the Sun platforms. It is our experience that the Java Virtual Machine (VM) on Unix platforms is slow. The NT platforms have better performance (CCS experience shows that the Microsoft VM has the best performance/reliability). The APT team plans to take advantage of the next version of the VM, but the panel was concerned that this may not be adequate to fully address performance concerns. If the users are not satisfied with the performance, it may be necessary to run code analyzers and expend effort into streamlining the code for efficiency. There should be some provision for this type of activity in the project schedule/effort estimates.

Question 3 Response

It is known fact the Java Virtual Machine (JVM) is slow on Unix platforms, particularly older model machines. The newer model Sun machines match the PC platforms performance. The APT GUI is sluggish on Sun machines, and will be even slower when we hook up our legacy engines (Transverse and Spike). We have developed the following plan.

- 1) We are currently evaluating the Transverse Engine for performance to determine how much of an impact this will have on user responsiveness of the APT GUI. This work is currently underway (see question 1 above).
- 2) We are going to look at architectures to support running these engines locally at a user site versus at STScI over the Internet. This work is expected to start in the November 2000 timeframe (see question 1 above).
- 3) We have committed to supporting Windows/NT on PCs for APT. This will give our user community an alternative faster platform. Today we only support RPS2 on Sun computers.
- 4) We will not have an APT version until January 2003 where RPS2 is no longer needed. We expect that our Sun users (there is nothing quantitative) will purchase newer Sun computers in that time period to support there data processing needs for ACS, COS, and WF3. Even if the individual users don't have a new Sun computer for their personal use, we expect that they will have access to a faster Sun computer within their organization.
- 5) We have not explicitly allocated a specific task in our project schedule to run code analyzers to streamline the code for efficiency. It is not clear what our tall pole (i.e., performance bottleneck) will be until we have integrated our legacy systems and have an

initial version of a full APT system. It may turn out that the performance bottleneck is in the communication between the Spike and Trans servers and not the Java code. Our plan is to have an APT that we can look at for performance in the fall of 2001 as we prepare for the Cycle 11 Phase 2 release (Jan 2002). We plan to gather user feedback on the January 2002 release on performance and address the issue in the calendar year of 2002 if necessary. This is a reason why the FTE levels on the APT resource chart are not decreased for the orbit planner or architecture tools after they have entered maintenance.

3. Issues from the APT management review held May 22, 2000

Question 4

Better definition of the capabilities of each release.

Question 4 Response

Timeline Tools	Phase 2 Cycle 10 (Jan 2001)	Phase 1 Cycle 11 (Jun 2001)	Phase 2 Cycle 11 (Jan 2002)	Phase 1 Cycle 12 (Jun 2002)	Phase 2 Cycle 12 (Jan 2003)
Visual Target Tuner	1) Display Bright Object Checking Output for one target at a time for the PI 2) Display WFPC2 archived apertures for the current HST operational instruments 3) GUI enhancements to improve usability and fix known bugs	1) Display Bright Object Checking Output for PI and Contact Scientist for all targets in proposals 2) Extend VTT to display any shape aperture 3) Display all HST archived apertures	1) Support Patterns and Dithering 2) Support Duplication Checking 3) Provide the ability to confirm that an exposure is correctly pointed taking into accounts target offsets, patterns, etc.	1) GUI/ engine enhancements based on Phase 2 Feedback 2)) Ability to Display preview images from the archive in the VTT	1) Provide the ability to look at all the pointings and configurations in a visit.
Exp Time Calculator	ACS Support	1) STIS Support 2) NICMOS Support	1) GUI /engine enhancements based on Phase 1 Feedback 2) Support for less used instrument modes 3) COS Support	1) WF3 Support 2) Support for less used instrument modes	1) GUI/ engine enhancements based on Phase 1 Feedback 2) Support for less used instrument modes.
Archival Research	1) Integrated Starview2/APT environment 2) VTT can display archived apertures for the	1) VTT can display all HST archived apertures	1) Support for Duplication Checking	1) Ability to Display preview images from the archive in the VTT	1) Address ease of use problems and bug fixes

	current HST operational instruments				
Orbit Planner			<ul style="list-style-type: none"> 1) Provide the ability to calculate/display orbital visibility and overheads 	<ul style="list-style-type: none"> 1) Provide a graphical model for adjusting orbital visibilities. 2) Address Performance issues related to the orbit planner 3) GUI/engine enhancements based on Phase 2 feedback 	<ul style="list-style-type: none"> 1) Address ease of use problems and bug fixes 2) Address performance issues if necessary
Visit Planner			<ul style="list-style-type: none"> 1) Provide the ability to calculate/display schedulability information 	<ul style="list-style-type: none"> 1) Provide a graphical model for inputting visit timing/orient constraints 2) Address Performance issues related to the visit planner 3) GUI/engine enhancements based on Phase 2 feedback 	<ul style="list-style-type: none"> 1) Address ease of use problems and bug fixes 2) Address performance issues if necessary
Top Level GUI	<ul style="list-style-type: none"> 1) ETC run as an independent tool 2) VTT run as an independent tool 3) VTT displays archived Starview2 images 	<ul style="list-style-type: none"> 1) Provide an internal only prototype GUI for Phase 2 to get internal feedback prior to external release. 	<ul style="list-style-type: none"> 1) Provide the capability to specify an entire Phase 2 proposal and produce an RPS2 file which must be run through RPS2 	<ul style="list-style-type: none"> 1) GUI changes based on Phase 2 Feedback 2) Prototype Graphical editors for proposal entry 3) Provide full Phase 1 support in APT if working group recommendation is yes. (current working group studying feasibility of adding Phase 1 to APT) 	<ul style="list-style-type: none"> 1) Provide a GUI that supports Phase 2 processing and Phase 1 if approved 2) Address ease of use problems and bug fixes 2) Address performance issues if necessary
Architecture	<ul style="list-style-type: none"> 1) Integrate Starview2/APT 2) Integrate Bright Object Checking Engine 	<ul style="list-style-type: none"> 1) Cost benefit analysis for CORBA and sockets as Communication to STScI legacy systems 2) Cost benefit analysis for client server model for APT GUI to STScI legacy systems 	<ul style="list-style-type: none"> 1) Provide Architecture to support APT tool set. 	<ul style="list-style-type: none"> 1) Address Performance issues related to the APT toolset based on Phase 2 feedback 2) Provide the capability to ensure that the proposal is error free before submission. 3) Provide full 	<ul style="list-style-type: none"> 1) Provide PI's with the ability to submit their Phase 2 programs 2) Address performance issues if necessary

		3) Prototype client/server and communication model to STScI legacy systems		Phase 1 support in APT if working group recommendation is yes. (current working group studying feasibility of adding Phase 1 to APT)	
Improved Help		1) Update help to reflect a science user perspective	1) Develop a prototype if feasible to incorporate the STScI instrument handbooks into the APT help	1) Update help to for new tools and capabilities	1) Update help to for new tools and capabilities

Question 5

The direction that the maintenance staff should be smaller than presented in the presentation, and that the switch from development to maintenance be more definite for each capability.

Question 5 Response

I believe the FTE levels shown through FY03 are correct and appropriate for the development and support of APT. I used the terms maintenance and development for individual tools and for the project as a whole. I will address these issues separately.

For The Individual Tools

I believe an area of confusion was my use of the terms maintenance and development. I was using these terms to express when the initial set of APT project requirements for the tool would be complete. This did not mean to infer that we had completed all of its must have requirements. There is also some contingency planning in the FTE levels for a couple of the tools. I will discuss each tool independently.

The FTE level for the ETC's stay at 1.0 FTE support for the life of the APT project and shows that there is a transition from development to maintenance after June 2001. The original set of APT requirements was to support the ACS, STIS, & NICMOS ETCs. This is scheduled to be completed by June 2001. Beyond this we know we will have support WF3 & COS which would fall under maintenance by my schedule. We also know that there will be a large amount of user feedback on the ETCs after the Phase 1 June 2001 release. This will be the first time that PIs will really use them for their Phase 1 submissions. This also falls under what I called maintenance. We do expect that the level of effort for the ETCs will need to be maintained at the 1.0 level to support adding new instruments, for improving the usability of the tool, and for implementing lesser-used modes for the HST instruments.

For Archival Research support, I show a transition from development to maintenance after the January 2002 release without a decrease in effort. We are planning to continue to implement new features, like displaying preview images from the archive. This new work will be implemented while we perform our maintenance activities. This project is scoped at a low level of effort .4 FTE support for the life of the APT project. Downsizing this project would inhibit us from being able to support new features like displaying preview images.

For the Orbit Planner and Architecture tools, I show a transition from development to maintenance after June 2002 release with no decrease in the level of support. This is our contingency planning for our technical risk areas. The technical risk areas identified today are performance and scalability of the architecture. See questions 1-3 above. I have left the FTE levels for the last 6 months of the project at the 1.0 FTE level for these tools to handle schedule slippages and to address performance issues for these tools. This is our risk management/contingency planning for our technical risk areas. We chose to recognize that there will be unforeseen problems and budget for it.

For The APT Project.

The project shows a decrease from 7.15 FTEs to 5.0 FTE after the January 2003 release. We plan to maintain the 5.0 FTE level for the January 2003 to June 2003 timeframe for the following reasons.

- 1) The January 2003 release is the first release where the user community will be required to use the APT toolset for Phase 2 preparation and submission. We expect there will be a fair amount of user support needed during the January 2003 to March 2003.
- 2) We expect there will be lots of feedback on usability, requests for improved features, performance issues, and unfortunately problems reported after the January 2003 release. We plan to keep the core development team together during the January 2003 to June 2003 to resolve as much of the high priority work before the June 2003 release. This will provide the user community with a better more usable tool.
- 3) We expect the 5.0 FTEs to be used as follows.
 - a. 0.5 Testing/Documentation support
 - b. 0.5 Science Support
 - c. 0.5 Project Management
 - d. 3.5 Developer Support

After the June 2003 release, we plan to evaluate the FTE levels needed to support APT. We believe that this will be the first period where we could scale support below 5.0 FTE level.

Resource and Release Schedules

The following two charts are provided for reference. They are the charts presented at the Management Review.

Project FTE Levels

Tool \ TimeLine	Start Jan 00	Cycle 10 Phase 1 Jun 00	Cycle 10 Phase 2 Jan 01	Cycle 11 Phase 1 Jun 01	Cycle 11 Phase 2 Jan 02	Cycle 12 Phase 1 Jun 02	Cycle 12 Phase 2 Jan 03	Project Totals FTEs
Visual Target Tuner	2.5	1.5	1.0	0.5	0.5	0.5	Maintenance	3.25
Exposure Time Calcs	1.5	1.5	1.0	1.0	1.0	1.0	Maintenance	3.5
Archival Research		0.4	0.4	0.4	0.4	0.4	Maintenance	1.0
Orbit Planner		1.0 Oct	1.0	1.0	1.0	1.0	Maintenance	2.25
Overguide Support		0.5 Oct	0.5	0.5 Oct.				0.5
Visit Planner			0.5	1.0	1.0	1.0	Maintenance	1.75
Top Level GUI		0.5	0.5	0.5	0.5	0.5	Maintenance	1.25
Architecture		1.0	1.0	1.0	1.0	1.0	Maintenance	2.5
Overguide Support		1.0 Oct	1.0	1.0 Oct.				1.0
Improved Help		0.5 Oct	0.5	0.5 Oct.			Maintenance	0.5
Science Support	1.0	1.0	1.0	1.0	1.0	1.0	Maintenance	3.0
Overguide Support		0.5 Oct	0.5	0.5 Oct.				0.5
Testing/ Document Support	0.75	0.75	0.5	0.75	0.5	0.75	Maintenance	2.0
Overguide Support		1.0 Oct	1.0 Oct	1.0 Oct.				1.0
Project Management	0.75	0.75	0.75	0.75	0.5	0.5	Maintenance	3.0
STScI Total FTEs	6.5	7.9	7.15	7.4	6.9	7.15	5	22.25
With overguide FTEs		3.5 Oct	3.5	3.5 Oct.				25.75

External Delivery Schedule

Tool \ TimeLine	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
Exp Time Calculator		X	M	M	M	M
Archival Research		X	X	M	M	M
Orbit Planner				X	M (X)	M
Visit Planner				X	X	M
Top Level GUI		X	X	X	X	M
Architecture		X	X	X	M (X)	M
Help Wizards/Tool Tips		X	X	M	M	M
Current Phase 1 Tool (Exp Time Calculators)		Replace ACS	Replace STIS, NICMOS	New WF3 & COS		
Current Phase 2 Tool (RPS2)		X		X		Replace RPS2

4. Issues from the September 2000 Master Schedule

Question 6

Request for input from APT project for Master Schedule

Question 6 Response

APT External Releases to Community - Major Milestones

Date Release Name

Jan 1, 2000	Cycle 10 Phase 2
Jun 1, 2001	Cycle 11 Phase 1
Jan 1, 2002	Cycle 11 Phase 2
Jun 1, 2002	Cycle 12 Phase 1
Jan 1, 2003	Cycle 12 Phase 2

5. Issues from the October 2000 Master Schedule

Question 7

Request to supply more detailed information on the Master Schedule for APT.

Question 7 Response

Pam,

The first section is the major external releases to the outside community. I have given you these previously. Nothing has changed on these. The second section is a list of tools which will be released and when. They for the most part map to the external releases. I only included the major milestones for the tools not all the internal releases for testing, etc. If they want that level of detail, we can point them to my project schedule on the web page. It is about 8 pages long.

Hope this will work for them,

Tony

APT External Releases to Community - Major Milestones

Date Release Name

Jan 1, 2000	Cycle 10 Phase 2
Jun 1, 2001	Cycle 11 Phase 1
Jan 1, 2002	Cycle 11 Phase 2
Jun 1, 2002	Cycle 12 Phase 1

Jan 1, 2003

Cycle 12 Phase 2

APT External and STScI Releases by Tool – Major Milestones

Tool	Date	Release Name
Visual Target Tuner	Jan 1, 2001	External Cycle 10 Phase 2
Visual Target Tuner	Jun 1, 2001	External Cycle 11 Phase 1
Visual Target Tuner	Jan 1, 2002	External Cycle 11 Phase 2
Visual Target Tuner	Jun 1, 2002	External Cycle 12 Phase 1
Visual Target Tuner	Jan 1, 2003	External Cycle 12 Phase 2
ACS Exposure Time Calculator	Jan 1, 2001	External Cycle 10 Phase 2
STIS, NICMOS Exposure Time Calculator	Jun 1, 2001	External Cycle 11 Phase 1
COS Exposure Time Calculator	Jan 1, 2002	External Cycle 11 Phase 2
WF3 Exposure Time Calculator	Jun 1, 2002	External Cycle 12 Phase 1
Exposure Time Calculator	Jan 1, 2003	External Cycle 12 Phase 2
Archival Research	Jan 1, 2001	External Cycle 10 Phase 2
Archival Research	Jun 1, 2001	External Cycle 11 Phase 1
Archival Research	Jan 1, 2002	External Cycle 11 Phase 2
Archival Research	Jun 1, 2002	External Cycle 12 Phase 1
Archival Research	Jan 1, 2003	External Cycle 12 Phase 2
Bright Obj Checking (PI Support)	Jan 21, 2001	External Cycle 10 Phase 2
Bright Obj Checking (Contact Sci Support)	Mar 15, 2001	STScI Contact Scientist Version
Bright Obj Checking (PI Support)	Jun 1, 2001	External Cycle 11 Phase 1
Orbit Planner Study (QuickTrans)	Aug 31, 2000	
Orbit Planner Prototype (QuickTrans)	Oct 31, 2000	
Orbit Planner	Jan 1, 2002	External Cycle 11 Phase 2
Orbit Planner	Jun 1, 2002	External Cycle 12 Phase 1
Orbit Planner	Jan 1, 2003	External Cycle 12 Phase 2
Visit Planner	Jan 1, 2002	External Cycle 11 Phase 2

Visit Planner	Jun 1, 2002	External Cycle 12 Phase 1
Visit Planner	Jan 1, 2003	External Cycle 12 Phase 2
Top Level GUI	Jan 1, 2001	External Cycle 10 Phase 2
Top Level GUI	Jun 1, 2001	External Cycle 11 Phase 1
Top Level GUI	Jan 1, 2002	External Cycle 11 Phase 2
Top Level GUI	Jun 1, 2002	External Cycle 12 Phase 1
Top Level GUI	Jan 1, 2003	External Cycle 12 Phase 2
APT Architecture	Jan 1, 2001	External Cycle 10 Phase 2
APT Architecture	Jun 1, 2001	External Cycle 11 Phase 1
APT Architecture	Jan 1, 2002	External Cycle 11 Phase 2
APT Architecture	Jun 1, 2002	External Cycle 12 Phase 1
APT Architecture	Jan 1, 2003	External Cycle 12 Phase 2
Phase 1 Operational Study	Aug 31, 2000	
APT Phase 1 Study	Dec 1, 2000	

6. Issues from the November 2000 Master Schedule

Question 8

>Tom,

> I think we have been misunderstanding each other w.r.t. the APT milestone chart in the MA-01
>report so I apologize for any confusion. We are looking for intermediate details of each release
>in the milestones and the various studies, not just the end delivery date. Therefore the
>milestone chart would have on it, based on the presentation by Tony to the Project, the
>following items:

- > Cycle 11 Phase 1 Release (Exp Time Calc; STIS/NIC)
- > Complete development - x
- > Complete internal testing x
- > Complete external beta test x
- > Release to Community x
- >
- > Cycle 11 Phase 1 Release (Archival Research)
- > Complete development - x
- > Complete internal testing x

> Complete external beta test	x
> Release to Community	x
>	
> Similarly, we want to see the various studies listed (not sure what all they	
> are so these are probably not accurate):	
>	
> APT Studies:	
> Tranverse Engine	x
> SPIKE Engine/CORBA	x
> Architecture Study	x

Question 8 Response

Pam,

Hopefully this will suffice. Jim had listed each tool individually in his request and wanted 4 pieces of information about them. See below.

> >Cycle 11 Phase 1 Release (Exp Time Calc; STIS/NIC)	
> >Complete development -	x
> >Complete internal testing	x
> >Complete external beta test	x
> >Release to Community	x
>	
> >Cycle 11 Phase 1 Release (Archival Research)	
> >Complete development -	x
> >Complete internal testing	x
> >Complete external beta test	x
> >Release to Community	x

When we release externally all tools have the same date when they are released, tested, etc. Its a bunch of redundant information in his format. Not sure how you want to show it on your schedule. If you need to break out the tools separately, the dates given are the same for all the tools listed with the release.

Also our external/internal testing are done concurrently, so I collapsed Jim's two testing lines into one.

OPERATIONAL APT RELEASES

Cycle 10 Phase 2 External Release 1

Tools: Visual Target Tuner

Exposure Time Calculator (ACS)

Complete development	- Dec 6, 2000
Complete internal/external testing	- Dec 20, 2000
Release to Community	- Jan 2, 2001

Cycle 10 Phase 2 External Release 2

Tools: Bright Object Checking, PI use

Complete development	- Dec 22, 2000
Complete internal/external testing	- Jan 10, 2001
Release to Community	- Jan 15, 2001

STScI Internal Release

Tools: Bright Object Checking, CS use

Complete development	- Feb 26, 2000
Complete internal testing	- Mar 12, 2001
Release to Community	- Mar 15, 2001

Cycle 11 Phase 1 External Release

Tools: Visual Target Tuner

Exposure Time Calculator (STIS, NICMOS)

Archival Research

Architecture

Complete development	- May 11, 2001
Complete internal/external testing	- May 29, 2001
Release to Community	- June 1, 2001

STScI Internal Top Level GUI Releases

Occurs from July 1, 2001 til Nov 27, 2001 period

Cycle 11 Phase 2 External Release

Tools: Visual Target Tuner

Exposure Time Calculator (COS)

Archival Research

Orbit Planner Tool

Visit Planner Tool

Architecture

Top Level GUI (Phase 2 prototype GUI)

Complete development - Nov 27, 2001

Complete internal/external testing - Dec 19, 2001

Release to Community - Jan 2, 2002

Cycle 12 Phase 1 External Release

Tools: Visual Target Tuner

Exposure Time Calculator (WF3)

Archival Research

Orbit Planner Tool

Visit Planner Tool

Architecture

Top Level GUI

Complete development - May 8, 2002

Complete internal/external testing - May 29, 2002

Release to Community - June 3, 2002

Cycle 12 Phase 2 Release

Tools: Visual Target Tuner

Exposure Time Calculator (WF3)

Archival Research

Orbit Planner Tool

Visit Planner Tool

Architecture

Top Level GUI	
Complete development	- Nov 28, 2002
Complete internal/external testing	- Dec 19, 2002
Release to Community	- Jan 2, 2003

STUDIES

Orbit Planner Studies

Complete QuickTrans Feasibility Study	- Sep 29, 2000
Complete QuickTrans Prototype	- Nov 15, 2000

Architecture Studies

Complete client/server study	- Jan 26, 2001
Complete Corba/socket study	- Jan 26, 2001

APT Phase 1 Study (reqs for Phase 1 in APT)

Complete Study and presentation	- 2nd week of December
---------------------------------	------------------------

APT Help Study (Presenting Science help in APT)

Complete Study and Presentation	- Mar 30, 2001
---------------------------------	----------------

Question 9

> I am also confused by the "Contact Scientist Support" bullet and the second "PI Support" bullet for Cycle 10 Phase 2 Release. Does this mean that with each release there are actually three releases? Is it that the PIs can use the release but the contact scientists can't?

Question 9 Response

BACKGROUND

Our phase 2 submission period is from January 2, 2001 till Feb 15, 2001 which is when our PIs prepare and submit their Phase 2 programs. After the programs come into STScI, the CSs begin doing their work around the end of March.

EXPLANATION

For this Phase 2, we will have two external releases. We are going to release the VTT and ACS ETC on January 2, 2001. The Bright object checking capability will not be ready on January 2, so we will package up a new release when that capability is completed (ie., Jan 15th). We decided not to slip the entire APT release just for Bright Object checking. PIs can use whichever release they download. They will not be required to install both versions. We actually

expect that most (probably all) will install after January 15th. The majority of PIs don't even download the software until after AAS, 1st/2nd week in January.

The Bright Object tool is going to allow both PIs and CSs to check for both health/safety and science issues related to bright objects. The tool has three components:

- the engine, which performs the checks
- the VTT GUI, which checks/displays the results of the bright object engine checks for a single exposure.
- a batch tool, which allows the PI/CS to run all the checks on the proposal at one time.

On January 15, 2001, we will release the engine and VTT GUI. This will allow anyone who uses the VTT to check one exposure at a time. On March 15, 2001, we will release the batch tool capability internally to STScI. This will allow the CSs to do their work starting the end of March. There is no reason to release the Batch tool externally, since APT can't accept an entire Phase 2 proposal yet. The Batch tool for the CSs will get its proposal information from our internal databases. Once APT can accept an entire Phase 2, the bright object batch tool will become available.

The CSs are interested in using the Batch version only. They don't want to have to check every target one at a time. So the Batch version got labelled by our project as the CS version and the other as the PI version

To summarize;

3 releases, two externally (Community use) and one internally (STScI use)

7. Issues from the December 2000 Master Schedule

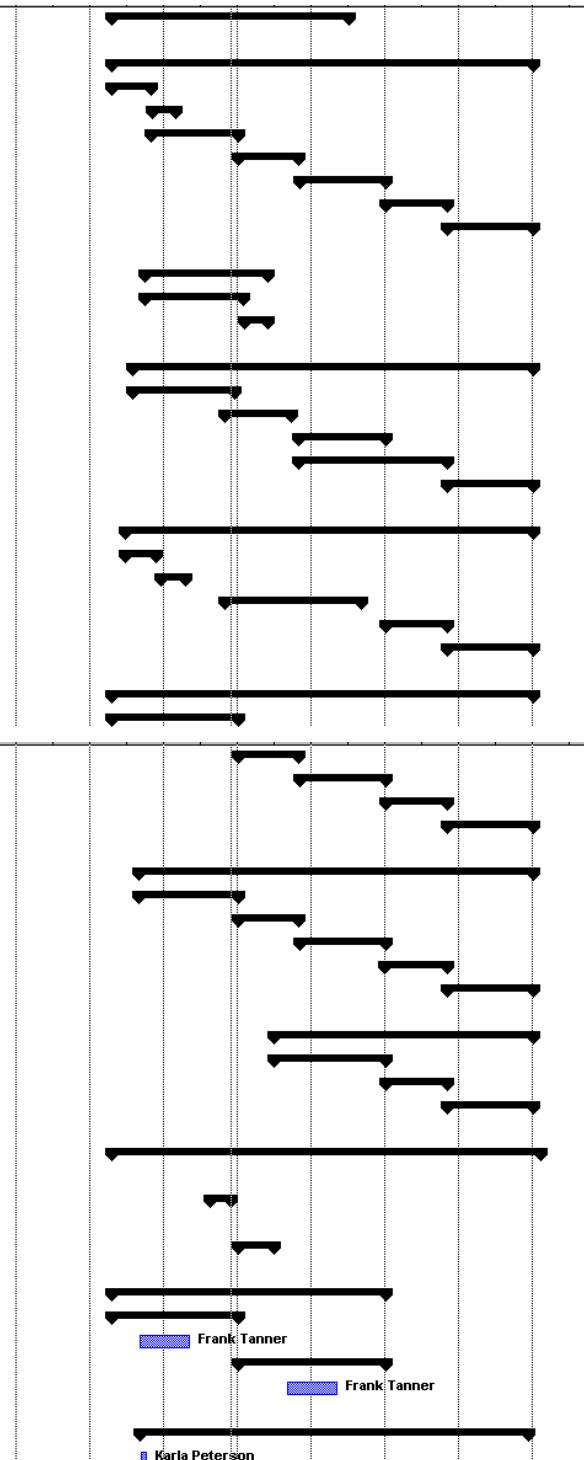
Question 10

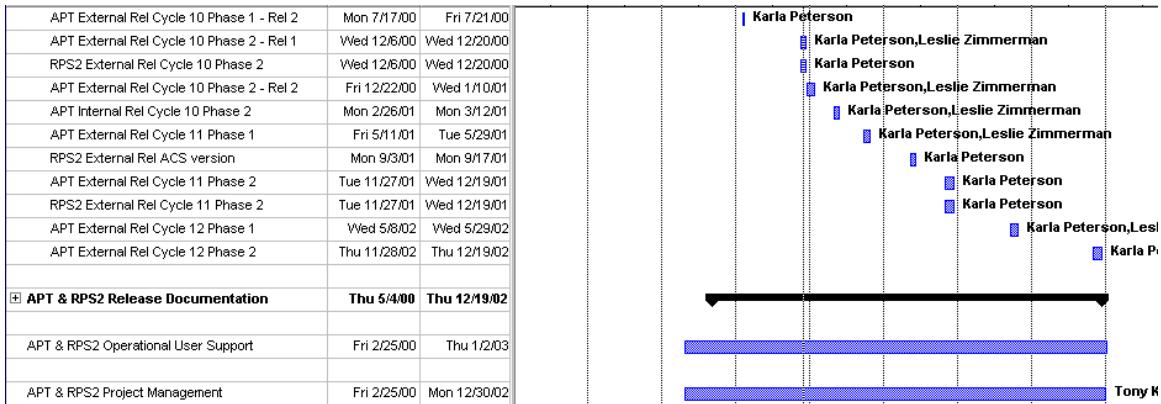
Clarification on what to supply Goddard on the STScI Master Schedule.

Question 10 Response

We will supply just the major APT release dates on the STScI Master Schedule. They are the six major release corresponding to the Phase 1 and Phase 2 releases for APT. We will provide Jim the following APT specific schedule.

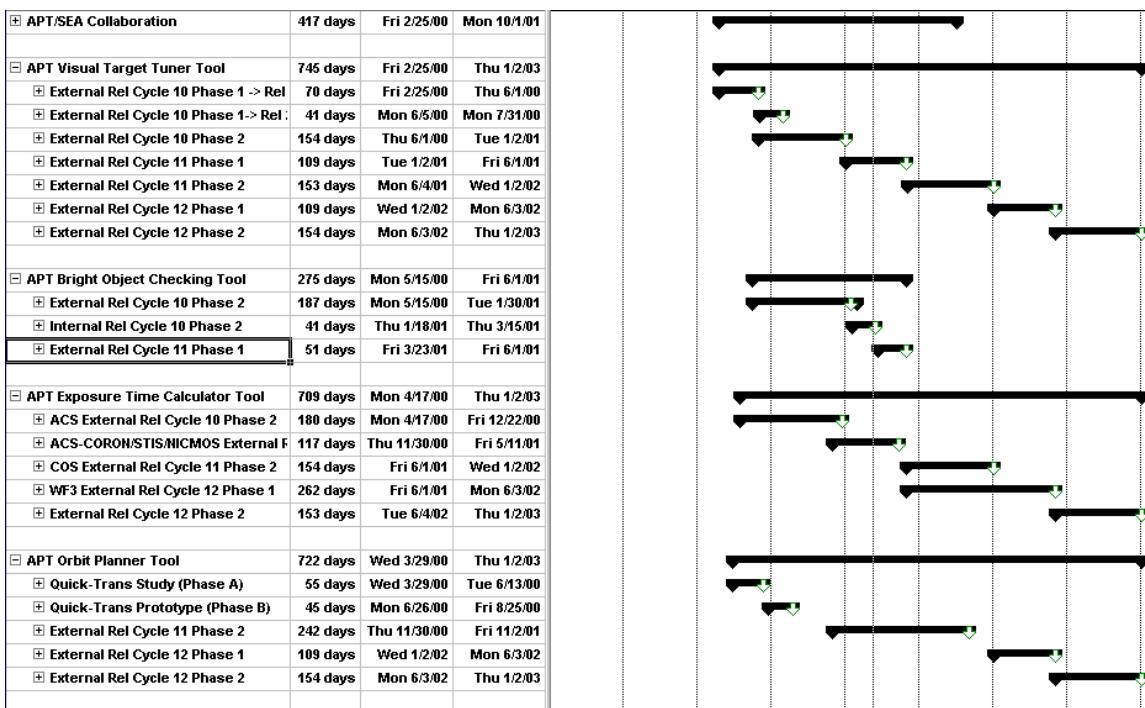
<input checked="" type="checkbox"/> APT/SEA Collaboration	Fri 2/25/00	Mon 10/1/01
<input checked="" type="checkbox"/> APT Visual Target Tuner Tool	Fri 2/25/00	Thu 1/2/03
<input checked="" type="checkbox"/> External Rel Cycle 10 Phase 1 -> Rel 1	Fri 2/25/00	Thu 6/1/00
<input checked="" type="checkbox"/> External Rel Cycle 10 Phase 1-> Rel 2	Mon 6/5/00	Mon 7/31/00
<input checked="" type="checkbox"/> External Rel Cycle 10 Phase 2	Thu 6/1/00	Tue 1/2/01
<input checked="" type="checkbox"/> External Rel Cycle 11 Phase 1	Tue 1/2/01	Fri 6/1/01
<input checked="" type="checkbox"/> External Rel Cycle 11 Phase 2	Mon 6/4/01	Wed 1/2/02
<input checked="" type="checkbox"/> External Rel Cycle 12 Phase 1	Wed 1/2/02	Mon 6/3/02
<input checked="" type="checkbox"/> External Rel Cycle 12 Phase 2	Mon 6/3/02	Thu 1/2/03
<input checked="" type="checkbox"/> APT Bright Object Checking Tool	Mon 5/15/00	Thu 3/15/01
<input checked="" type="checkbox"/> External Rel Cycle 10 Phase 2	Mon 5/15/00	Mon 1/15/01
<input checked="" type="checkbox"/> Internal Rel Cycle 10 Phase 2	Thu 1/18/01	Thu 3/15/01
<input checked="" type="checkbox"/> APT Exposure Time Calculator Tool	Mon 4/17/00	Thu 1/2/03
<input checked="" type="checkbox"/> ACS External Rel Cycle 10 Phase 2	Mon 4/17/00	Fri 12/22/00
<input checked="" type="checkbox"/> ACS-CORON/STIS/NICMOS External Rel Cy	Thu 11/30/00	Fri 5/1/01
<input checked="" type="checkbox"/> COS External Rel Cycle 11 Phase 2	Fri 6/1/01	Wed 1/2/02
<input checked="" type="checkbox"/> WF3 External Rel Cycle 12 Phase 1	Fri 6/1/01	Mon 6/3/02
<input checked="" type="checkbox"/> External Rel Cycle 12 Phase 2	Tue 6/4/02	Thu 1/2/03
<input checked="" type="checkbox"/> APT Orbit Planner Tool	Wed 3/29/00	Thu 1/2/03
<input checked="" type="checkbox"/> Quick-Trans Study (Phase A)	Wed 3/29/00	Tue 6/13/00
<input checked="" type="checkbox"/> Quick-Trans Prototype (Phase B)	Mon 6/26/00	Fri 8/25/00
<input checked="" type="checkbox"/> External Rel Cycle 11 Phase 2	Thu 11/30/00	Fri 11/2/01
<input checked="" type="checkbox"/> External Rel Cycle 12 Phase 1	Wed 1/2/02	Mon 6/3/02
<input checked="" type="checkbox"/> External Rel Cycle 12 Phase 2	Mon 6/3/02	Thu 1/2/03
<input checked="" type="checkbox"/> APT Infrastructure and GUI Re-Engineering	Fri 2/25/00	Thu 1/2/03
<input checked="" type="checkbox"/> External Rel Cycle 10 Phase 2	Fri 2/25/00	Tue 1/2/01
<input checked="" type="checkbox"/> External Rel Cycle 11 Phase 1	Wed 1/3/01	Fri 6/1/01
<input checked="" type="checkbox"/> External Rel Cycle 11 Phase 2	Mon 6/4/01	Wed 1/2/02
<input checked="" type="checkbox"/> External Rel Cycle 12 Phase 1	Wed 1/2/02	Mon 6/3/02
<input checked="" type="checkbox"/> External Rel Cycle 12 Phase 2	Tue 6/4/02	Thu 1/2/03
<input checked="" type="checkbox"/> APT Archival Research Tool	Mon 5/1/00	Thu 1/2/03
<input checked="" type="checkbox"/> External Rel Cycle 10 Phase 2	Mon 5/1/00	Tue 1/2/01
<input checked="" type="checkbox"/> External Rel Cycle 11 Phase 1	Tue 1/2/01	Fri 6/1/01
<input checked="" type="checkbox"/> External Rel Cycle 11 Phase 2	Mon 6/4/01	Wed 1/2/02
<input checked="" type="checkbox"/> External Rel Cycle 12 Phase 1	Tue 1/1/02	Mon 6/3/02
<input checked="" type="checkbox"/> External Rel Cycle 12 Phase 2	Mon 6/3/02	Thu 1/2/03
<input checked="" type="checkbox"/> APT Visit Planner Tool	Mon 4/2/01	Thu 1/2/03
<input checked="" type="checkbox"/> External Rel Cycle 11 Phase 2	Mon 4/2/01	Wed 1/2/02
<input checked="" type="checkbox"/> External Rel Cycle 12 Phase 1	Thu 1/3/02	Mon 6/3/02
<input checked="" type="checkbox"/> External Rel Cycle 12 Phase 2	Mon 6/3/02	Thu 1/2/03
<input checked="" type="checkbox"/> APT Stakeholder Support	Fri 2/25/00	Mon 1/20/03
<input checked="" type="checkbox"/> APT Phase 1 Support	Mon 10/23/00	Wed 12/13/00
<input checked="" type="checkbox"/> APT Help Study	Tue 1/2/01	Fri 3/30/01
<input checked="" type="checkbox"/> RPS2	Fri 2/25/00	Wed 1/2/02
<input checked="" type="checkbox"/> External Rel Cycle 10 Phase 2	Fri 2/25/00	Tue 1/2/01
External Rel Cycle 11 Phase 1	Mon 5/1/00	Fri 9/1/00
<input checked="" type="checkbox"/> External Rel Cycle 11 Phase 2	Tue 1/2/01	Wed 1/2/02
External Rel Cycle 12 Phase 1	Tue 5/1/01	Mon 9/3/01
<input checked="" type="checkbox"/> APT & RPS2 Integration Testing	Thu 5/4/00	Thu 12/19/02
APT External Rel Cycle 10 Phase 1 - Rel 1	Thu 5/4/00	Fri 5/19/00



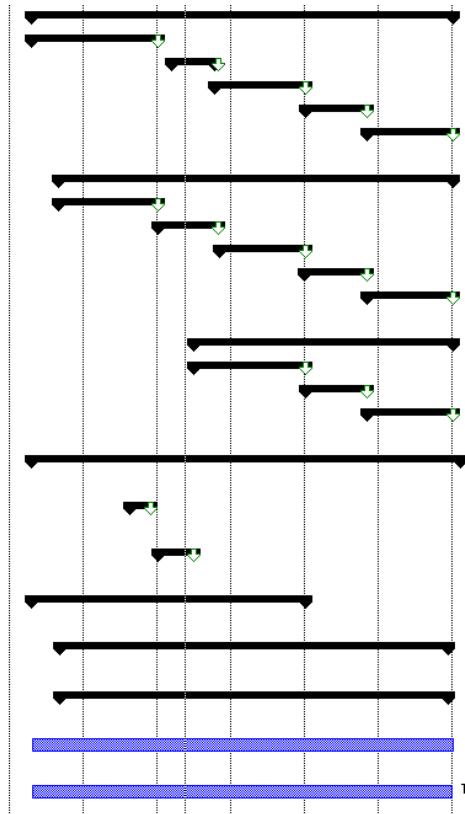


8. Updates to the detailed APT master schedule sent to Goddard. March 2001.

We supply two schedules to Goddard for APT, a high-level schedule and a more detailed schedule. The high level schedule is included in the STScI master schedule. There are no changes to this high-level schedule. A more detailed schedule is sent to Goddard and there is a change this month to that schedule. The detailed version of the master schedule was missing the June 1, 2001 Bright Object Release. This delivery is on the high-level schedule, but was missing from the more detailed version. This new detailed APT schedule makes both consistent and correct.



APT Infrastructure and GUI Re-Engineer	745 days	Fri 2/25/00	Thu 1/2/03
External Rel Cycle 10 Phase 2	223 days	Fri 2/25/00	Tue 1/2/01
External Rel Cycle 11 Phase 1	76 days	Mon 2/5/01	Mon 5/21/01
External Rel Cycle 11 Phase 2	163 days	Mon 5/21/01	Wed 1/2/02
External Rel Cycle 12 Phase 1	109 days	Wed 1/2/02	Mon 6/3/02
External Rel Cycle 12 Phase 2	153 days	Tue 6/4/02	Thu 1/2/03
APT Archival Research Tool	699 days	Mon 5/1/00	Thu 1/2/03
External Rel Cycle 10 Phase 2	177 days	Mon 5/1/00	Tue 1/2/01
External Rel Cycle 11 Phase 1	109 days	Tue 1/2/01	Fri 6/1/01
External Rel Cycle 11 Phase 2	153 days	Mon 6/4/01	Wed 1/2/02
External Rel Cycle 12 Phase 1	110 days	Tue 1/1/02	Mon 6/3/02
External Rel Cycle 12 Phase 2	154 days	Mon 6/3/02	Thu 1/2/03
APT Visit Planner Tool	459 days	Mon 4/2/01	Thu 1/2/03
External Rel Cycle 11 Phase 2	198 days	Mon 4/2/01	Wed 1/2/02
External Rel Cycle 12 Phase 1	108 days	Thu 1/3/02	Mon 6/3/02
External Rel Cycle 12 Phase 2	154 days	Mon 6/3/02	Thu 1/2/03
APT Stakeholder Support	757 days	Fri 2/25/00	Mon 1/20/03
APT Phase 1 Support	37.5 days	Mon 10/23/00	Wed 12/13/00
APT Help Study	64 days?	Tue 1/2/01	Fri 3/30/01
RPS2	484 days	Fri 2/25/00	Wed 1/2/02
APT & RPS2 Integration Testing	686 days	Thu 5/4/00	Thu 12/19/02
APT & RPS2 Release Documentation	686 days	Thu 5/4/00	Thu 12/19/02
APT & RPS2 Operational User Support	745 days	Fri 2/25/00	Thu 1/2/03
APT & RPS2 Project Management	742 days	Fri 2/25/00	Mon 12/30/02



9. Updates to the detailed APT master schedule sent to Goddard. May 2001.

Introduction

In April, APT was tasked by the APT User Group and the STScI Instrument Scientist Groups to provide a Web-Based GUI for the APT Exposure Time Calculator. To complete this task will require between 5-6 months of APT development work, which was not in the original APT project plan. This document describes the impact this will have on APT's resources and delivery schedule.

Providing a Web-Based Exposure Time Calculator

Justification

The Instrument Scientist Groups have requested that APT provide a Web-based interface to the APT ETC. The Instrument Groups felt that a Web Based interface was necessary if STScI wants to continue to provide easily accessible and high-quality ETC support. The Web interface will provide the following benefits to the science community:

- 1) Provides easy access for all users either at their home institutions or while traveling.
- 2) The ETCs are used throughout the year and this will reduce the amount of time and effort a user will spend to install and setup the new versions of the APT ETC.
- 3) This will allow changes to the ETCs at STScI which are immediately available to all users. This will eliminate the need to re-install updated software on a users computer.
- 4) The science community expects access to the ETCs via the Web.

APT Resource Impact

This will require between 5-6 months of additional ETC work between now and January 2003. APT's original development plan had us delivering the last ETC for Cycle 12 phase 1, thus freeing up .75 of a developer for other APT work. This developer will now be needed until Cycle 12 phase 2, thus impacting other APT work.

APT Schedule Impact

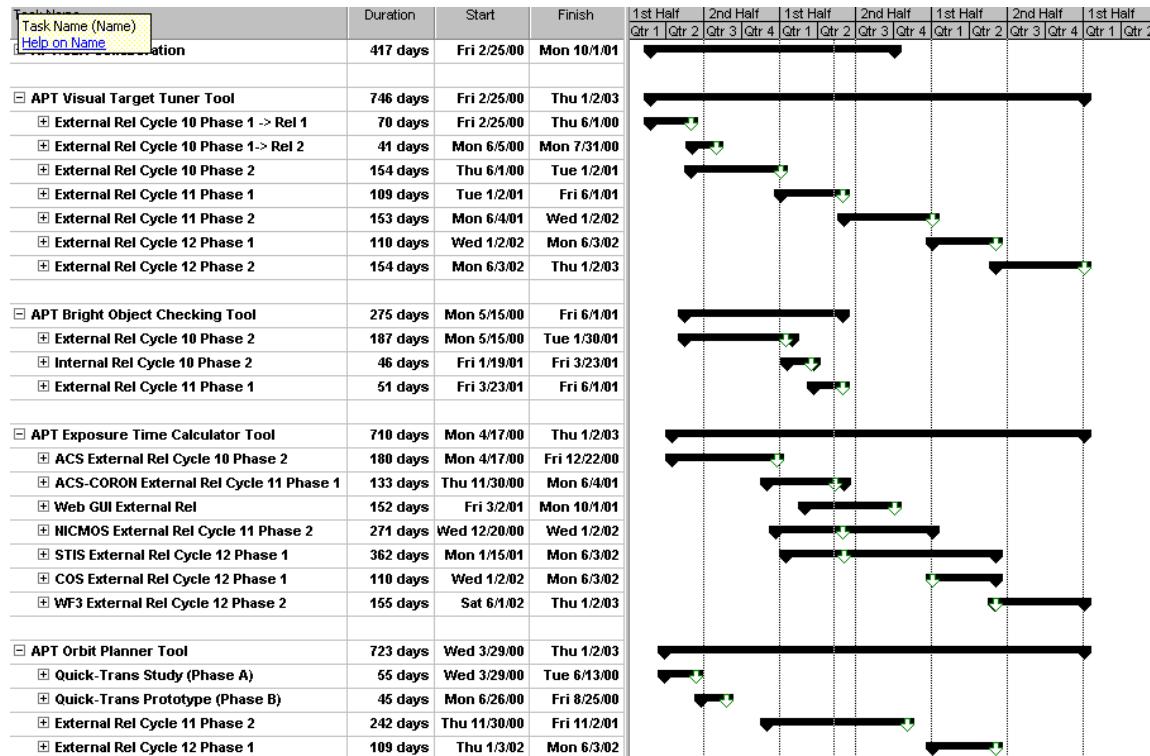
APT's current development plan was:

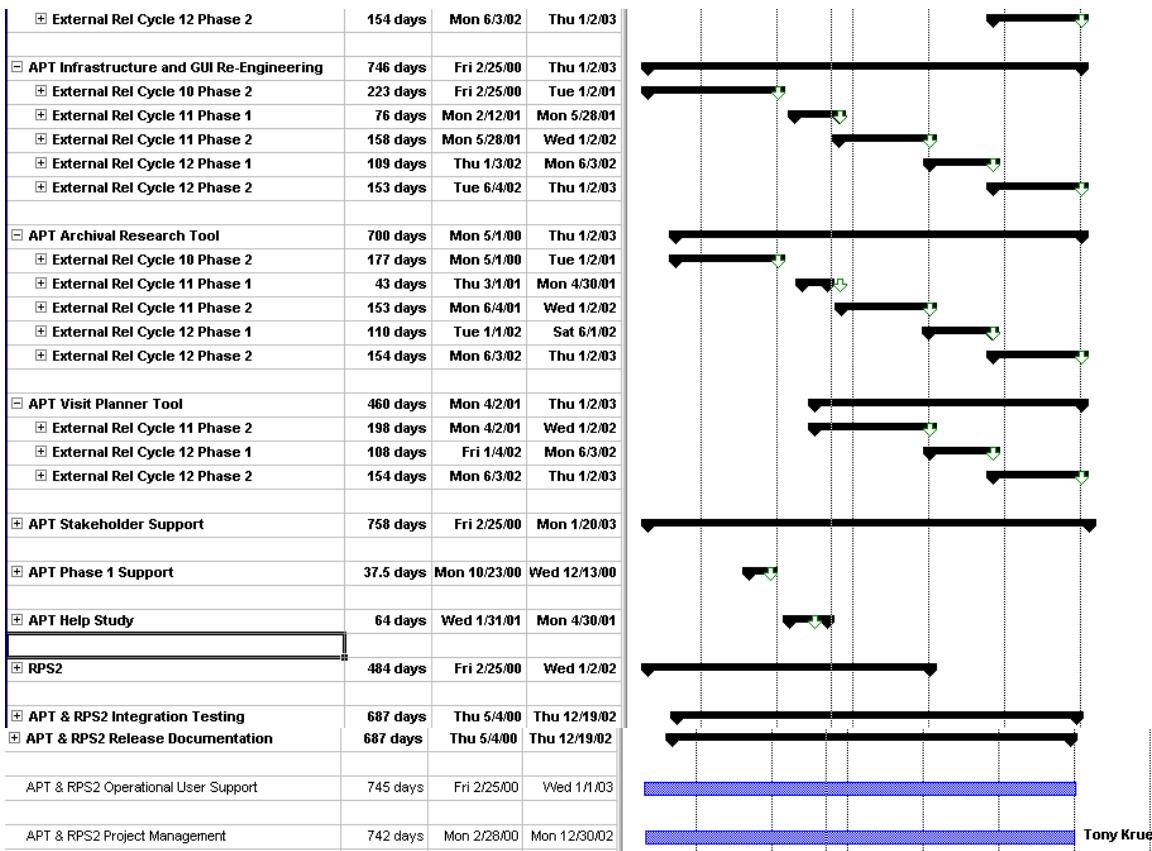
TASK	DATE	PHASE	CYCLE
ACS	Jun 2001	1	11
NICMOS	Jun 2001	1	11
STIS	Jan 2002	2	11
COS	Jan 2002	2	11
WF3	Jun 2002	1	12

The revised plan is as follows. This plan was developed by both the Instrument Groups and the ETC development team:

TASK	DATE	PHASE	CYCLE
ACS	Jun 2001	1	11
Web-Based GUI	Jan 2002	2	11
NICMOS	Jan 2002	2	11
STIS	Jun 2002	1	12
COS	Jun 2002	1	12
WF3	Jan 2003	2	12

Detailed Schedule





APT Management Plan

APT's project manager will work with the APT user group, operations and STScI management to develop a revised APT development plan. We will look at models for getting additional APT resources or downscoping other parts of the APT project.