

GNIRS MONTHLY REPORT

August 99 to May 00

Project Title: Gemini Near InfraRed Spectrograph (GNIRS)

WBS: 5.1

Project Description: 1-5 um Spectrograph with multiple filters, slits, Deckers, prisms, gratings and cameras.

WPM: N. Gaughan

	Original Budget	Actual Spent Cum	Est. To Go	Est. Project Total
Labor Cost	\$3,391,232	\$589,674	\$2,801,558	\$3,391,232
Capital	\$836,462	\$108,863	\$727,599	\$836,462

Key Personnel		
Title	Name	% Dedicated
PM	Gaughan	100
PS	Elias	100
ME	Goble	100
ME	Muller	100
EE	Rudeen	100
MD	Andrew	100

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Labor Costs (\$K)										
Planned Labor	\$53,542	\$94,126	\$98,952	\$75,981	\$55,385	\$106,421	\$94,730	\$129,787	\$114,861	\$123,511
Actual Labor	\$34,302	\$50,463	\$51,277	\$47,901	\$48,380					
Cum Over/Under	\$19,240	\$62,903	\$10,578	\$138,658	\$145,663					
FTE Loading (FTE)										
Planned	12	15	14	13	13	14	16	19	20	19
Actual	5.6	8.3	8.4	7.9	8.0					
Capital (\$K)										
Planned Capital	\$0	\$34,100	\$6,250	\$9,810	\$8,780	\$19,450	\$1,500	\$8,851	\$8,1330	\$53,940
Actual Capital	\$12,798	\$1,608	\$718	\$4,409	\$12,060					

Key Milestones		
Activity	Date	Status
Project Start	1/1/1999	C
Pre-Fab Review	2/15/2000	

ID	WBS	Task Name	%	2000											
				Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
210	5.2	Systems Engineering	37%	[Gantt bars with diamond markers]											
327	5.3.1	Mechanisms	2%	[Gantt bars with diamond markers]											
695	5.3.2	Bench Assemblies	4%	[Gantt bars with diamond markers]											
842	5.3.3	Fixed Assemblies	0%	[Gantt bars with diamond markers]											
1211	5.4	Electronics	0%	[Gantt bars with diamond markers]											
1325	5.5	Software	0%	[Gantt bars with diamond markers]											

% Complete: 6%
Total Milestones: 192
Completed Milestones: 1
Key Milestone: Pre-Fabrication Review

BCWS	383,515	SPI	0.90
BCWP	344,636	CPI	1.29
ACWP	266,177		

Scope Changes:

- There are no new technical scope changes.

Pending Issues & Resolutions:

- The optical bench designs are behind schedule. The designs are in process, with most of the definition of the wavefront sensor bench and forward optical bench completed.
- The Linear and Rotary drive prototypes are in fabrication. Prototype testing of these drives will slip into February. The Optical Mount Prototype is in test.
- Work has resumed on the Camera Assembly barrel design. This activity is still on the critical path.

Project Manager's Assessment of Project Health:

- Acceptable. We are about 4 weeks behind schedule. The design engineering activity is focused on Optical Bench structural design. Work in Systems Engineering risk-reduction prototyping and on the Camera Assembly Mechanism is proceeding.

GNIRS MONTHLY REPORT

August 99 to May 00

Project Title: GNIRS Systems Engineering

WBS: 5.2

Project Description: Includes analyses, prototyping, and optical design updates.

WPM: J. Elias

	Original Budget	Actual Spent Cum	Est. To Go	Est. Project Total
Labor Cost	\$166,174	\$84,192	\$81,982	\$166,174
Capital	\$16,910	\$17,263	-\$353	\$16,910

Key Personnel		
Title	Name	% Dedicated
PS	Elias	100
ME	Goble	100
ME	Muller	100
OE	Liang	10
IM	Rath	100

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Labor Costs (\$K)										
Planned Labor	\$ 12,882	\$49,723	\$36,877	\$20,824	\$ 13,982	\$26,756	\$5,130	\$0	\$0	\$0
Actual Labor	\$5,352	\$22,723	\$20,913	\$17,980	\$17,224					
Cum Over/Under	\$7,530	\$27,000	\$50,494	\$53,338	\$50,096					
FTE Loading (FTE)										
Planned	2	8	6	3	2	2	1	0	0	0
Actual	0.9	3.7	3.4	3.0	2.8					
Capital (\$K)										
Planned Capital	\$0	\$3,100	\$5,000	\$8,810	\$0	\$0	\$0	\$0	\$0	\$0
Actual Capital	\$525	\$2,178	\$197	\$2,186	\$12,177					

Key Milestones		
Activity	Date	Status
Analysis		
Cold Motor T&E		
Prototyping		
Optics Update		

ID	WBS	Task Name	%	2000													
				Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
211	5.2.1	Thermal analysis	17%														
226	5.2.2	Structural Analysis	5%														
239	5.2.3	Update Optics Design	17%														
244	5.2.5	Mechanism Test Set	60%														
251	5.2.6	Cold Motor Testing & Evaluation	88%														
261	5.2.7.2	Rotary Prototype Mechanism	46%														
288	5.2.7.3	Linear Prototype Mechanism	39%														
315	5.2.7.4	Prototype Optics Mounts	37%														

% Complete: 37%

Total Milestones: 10

Completed Milestones: 1

Scope Changes:

- None.

Pending Issues & Resolutions:

- The structural analysis will be done at the completion of Spectrograph solid model design
- The thermal analysis will be done by Jay at the same time as the structural analysis.
- The Linear and Rotary prototypes are in fabrication. A large portion of the fabrication is being done by outside shops, in order to maintain schedule.
- The Optical Mount prototype is in test.

Project Manager's Assessment of Work Package Health:

- Good. The structural analysis is a pacing item, but does not seriously impact the overall schedule. All other components of this work package are under control and on an acceptable schedule.

GNIRS MONTHLY REPORT

August 99 to May 00

Project Title: GNIRS Mechanisms

WBS: 5.3.1

Project Description: Includes the design, fabrication and test of the 9 mechanisms used in GNIRS.

WPM: G. Muller

	Original Budget	Actual Spent Cum	Est. To Go	Est. Project Total
Labor Cost	\$607,628	\$33,508	\$574,120	\$607,628
Capital	\$274,217	\$960	\$273,257	\$274,217

Key Personnel		
Title	Name	% Dedicated
ME	Muller	100
MD	Andrew	100
MD	Rosin	100
MD	Downey	100
MD	Robles	100
MT	Davis	100

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Labor Costs (\$K)										
Planned Labor	\$0	\$4,123	\$18,012	\$18,411	\$17,560	\$28,447	\$33,220	\$39,303	\$45,729	\$52,896
Actual Labor	\$0	\$2,014	\$12,274	\$10,033	\$9,187					
Cum Over/Under	\$0	\$2,109	\$7,847	\$16,225	\$24,598					
FTE Loading (FTE)										
Planned	0	1	3	3	3	5	5	6	8	9
Actual	0.0	0.3	2.0	1.7	1.5					
Capital (\$K)										
Planned Capital	\$0	\$0	\$0	\$0	\$4,080	\$4,450	\$0	\$7,151	\$6,380	\$52,000
Actual Capital	\$0	\$475	\$472	\$6	\$7					

Key Milestones		
Activity	Date	Status

WBS	Task Name	%	2000															
			Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		
5.3.1.2	Camera Assembly	8%			████████	◇												
5.3.1.3	Detector Focus Assembly	0%																
5.3.1.4	Environmental Cover Assembly	0%																
5.3.1.5	Acquisition Mirror Assembly	2%																
5.3.1.6	Slit/Decker Assembly	0%																
5.3.1.7	Filter Wheel Assembly	0%																
5.3.1.8	Grating Turret	0%																
5.3.1.9	Prism Turret	0%																

% Complete: 2%
Total Milestones: 46
Completed Milestones: 0

Scope Changes:

- None.

Pending Issues & Resolutions:

- One Camera Assembly barrel design has been completed, and work has started on the second barrel design.
- Mechanism-to-bench interfaces have been defined and will be documented in an SDN.
- Work has started on the Acquisition Mirror Assembly, in support of the Spectrograph Optical Bench design effort.
- Work on the Filter Wheel Assembly and Environmental Cover Assembly will start this month.

Project Manager's Assessment of work Package Health:

- Good. The confidence level in the design of the mechanisms is high. The 3D designs will be adjusted to reflect/include results from the prototyping and bench interface definition.

GNIRS MONTHLY REPORT

August 99 to May 00

Project Title: GNIRS Bench Assemblies

WBS: 5.3.2

Project Description: Design and fabrication of the four cold bench assemblies used in GNIRS.

WPM: L. Goble

	Original Budget	Actual Spent Cum	Est. To Go	Est. Project Total
Labor Cost	\$194,142	\$23,914	\$170,228	\$194,142
Capital	\$101,069	\$259	\$100,810	\$101,069

Key Personnel		
Title	Name	% Dedicated
ME	Goble	100
MD	Andrew	100
MT	Davis	100

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Labor Costs (\$K)										
Planned Labor	\$12.16	\$12,768	\$12,312	\$2,204	\$0	\$228	\$14,478	\$12,008	\$17,708	\$13,566
Actual Labor	\$0	\$1666	\$7,025	\$8,270	\$6,953					
Cum Over/Under	\$12.16	\$11,102	\$17,605	\$11,539	\$4,586					
FTE Loading (FTE)										
Planned	0	2	2	1	2	2	2	2	3	2
Actual	0.0	0.3	1.2	1.4	1.1					
Capital (\$K)										
Planned Capital	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$12,000	\$0
Actual Capital	\$0	\$282	\$283	\$0	-\$306					

Key Milestones		
Activity	Date	Status

ID	WBS	Task Name	%	2000															
				Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		
696	5.3.2.1	Spectrograph Bench Casting:	7%	[Gantt bar with diamond markers]															
724	5.3.2.2	OIWFS Assembly	10%	[Gantt bar with diamond markers]															
753	5.3.2.3	Collimator Assembly	0%	[Gantt bar with diamond markers]															
792	5.3.2.4	Fore Optics Assembly	0%	[Gantt bar with diamond markers]															

% Complete: 4%
Total Milestones: 23
Completed Milestones: 0

Scope Changes:

- None.

Pending Issues & Resolutions:

- This effort is on the project critical path to Prefabrication Review, which will be delayed until the solid models of the benches are completed.
- Significant progress has been made on the OIWFS bench and the Forward Optics bench designs. The main Spectrograph bench design will start in February, following analysis of the other two benches.

Project Manager's Assessment of Work Package Health:

- Fair. Re-scheduling the Pre-Fabrication Review is inconvenient, but not on the project critical path. Any further delay might impact the project from the standpoint of slowing work on the mechanisms. Contingency planning is in process.

GNIRS MONTHLY REPORT

August 99 to May 00

Project Title: GNIRS Fixed Assemblies

WBS: 5.3.3

Project Description: All assemblies with no moving parts except the optical benches.

WPM: G. Muller

	Original Budget	Actual Spent Cum	Est. To Go	Est. Project Total
Labor Cost	\$353,533	\$553	\$352,980	\$353,533
Capital	\$188,986	\$18	\$188,968	\$188,986

Key Personnel		
Title	Name	% Dedicated
ME	Muller/Goble	100
MD	Andrew	100
MD	Rosin	100
MD	Downey	100
MD	Robles	100
MT	Davis	100

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Labor Costs (\$K)										
Planned Labor	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$9,044	\$4,636	\$6,612
Actual Labor	\$0	\$358	\$195	\$0	\$0					
Cum Over/Under	\$0	-\$358	-\$553	-\$553	-\$553					
FTE Loading (FTE)										
Planned	0	0	0	0	0	0	0	1	1	1
Actual	0.0	0.1	0.0	0.0	0.0					
Capital (\$K)										
Planned Capital	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$640
Actual Capital	\$0	\$0	\$18	\$0	\$0					

Key Milestones		
Activity	Date	Status

ID	WBS	Task Name	%	2000															
				Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		
843	5.3.3.1	Entrance Window Assembly	0%										◇◇						
859	5.3.3.2	Detector Mount Assembly	0%																
879	5.3.3.3	Cryo Cooler Assembly	0%																
985	5.3.3.8	Environmental Cover Filter	0%																
1003	5.3.3.9	Bulkhead Assembly	0%																
1030	5.3.3.10	Front Radiation Shield Assembly	0%																
1051	5.3.3.11	Rear Radiation Shield Assembly	0%																
1069	5.3.3.12	Front Dewar Shell	0%																
1092	5.3.3.13	Rear Dewar Shell	0%																
1114	5.3.3.14	Vertical Installation Frame Assem	0%																
1137	5.3.3.15	Horizontal Installation Frame Ass	0%																
1160	5.3.3.16	Dewar Mount Truss Assembly	0%																
1182	5.3.3.17	Thermal Enclosure Mount Assem	0%																

% Complete: 0%
Total Milestones: 67
Completed Milestones: 0

Scope Changes:

- None.

Pending Issues & Resolutions:

- None.

Project Manager's Assessment of Work Package Health:

- None.

GNIRS MONTHLY REPORT

August 99 to May 00

Project Title: GNIRS Electronics

WBS: 5.4

Project Description: Design and fabrication of the GNIRS electronics subsystems

WPM: A. Rudeen

	Original Budget	Actual Spent Cum	Est. To Go	Est. Project Total
Labor Cost	\$132,658	-\$5,509	\$138,167	\$132,658
Capital	\$11,900	-\$3,340	\$15,240	\$11,900

Key Personnel		
Title	Name	% Dedicated
PS	Elias	20
EE	Rudeen	100

Key Milestones		
Activity	Date	Status
Project Start	1/1/1999	C

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Labor Costs (\$K)										
Planned Labor	\$0	\$0	\$1,216	\$6,080	\$8,512	\$16,606	\$12,312	\$22,800	\$12,768	\$11,552
Actual Labor	\$0	-\$5,509	\$0	\$0	\$0					
Cum Over/Under	\$0	\$5,509	\$6,725	\$12,805	\$21,317					
FTE Loading (FTE)										
Planned	0	0	0	1	1	3	2	4	2	2
Actual	0.0	-0.9	0.0	0.0	0.0					
Capital (\$K)										
Planned Capital	\$0	\$0	\$750	\$0	\$4,200	\$1,500	\$200	\$750	\$3,000	\$0
Actual Capital	\$0	-\$3,707	\$364	\$3	\$0					

ID	WBS	Task Name	%	2000															
				Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		
1239	5.4.1.3	Thrmal Encl Int. Cabling & Conne	0%																
1289	5.4.2	Ext. Inst Wiring & Cables	0%																
1296	5.4.3	Dewar Warm-up Controller	0%																
1302	5.4.4	Dewar Electronics	0%																

% Complete: 0%
Total Milestones: 14
Completed Milestones: 0

Scope Changes:

- None.

Pending Issues & Resolutions:

- None.

Project Manager's Assessment of Work Package Health:

- Good. Only a small amount of work on the Dewar Warm-up controller has been started in this area of the project. This area of the project is not a pacing item at this time and has no impact on any key milestone.

GNIRS MONTHLY REPORT

August 99 to May 00

Project Title: GNIRS Software

WBS: 5.5

Project Description: Design, code and test of the GNIRS Engineering and System software.

WPM: R. Wolff

	Original Budget	Actual Spent Cum	Est. To Go	Est. Project Total
Labor Cost	\$156,256	\$994	\$155,262	\$156,256
Capital	\$0	\$1	-\$1	\$0

Key Personnel		
Title	Name	% Dedicated
PS	Elias	10
P1	TBD	100
P2	TBD	100

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Labor Costs (\$K)										
Planned Labor	\$0	\$0	\$0	\$0	\$0	\$6,080	\$0	\$7,600	\$10,032	\$13,376
Actual Labor	\$0	\$0	\$0	\$0	\$994					
Cum Over/Under	\$0	\$0	\$0	\$0	-\$994					
FTE Loading (FTE)										
Planned	0	0	0	0	0	1	1	1	1	1
Actual	0.0	0.0	0.0	0.0	0.2					
Capital (\$K)										
Planned Capital	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Actual Capital	\$0	\$0	\$0	\$0	\$1					

Key Milestones		
Activity	Date	Status
SW Plan	11/1/1999	
Eng SW Req	2/1/2000	
Sys SW Req	4/1/2000	

ID	WBS	Task Name	%	2000														
				Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
1326	5.5.1	Software Plan	0%															
1331	5.5.2	Engineering Software	0%															
1337	5.5.3	System Software	0%															

% Complete: 0%
Total Milestones: 10
Completed Milestones: 0

Scope Changes:

- None.

Pending Issues & Resolutions:

- Richard Wolff has started work on developing the Software Plan, which is due as a milestone to Gemini in April.

Project Manager's Assessment of Project Health:

- Good. The software area of the project is under control.