# Minutes of GLAST User's Committee (GUC) Meeting
# GSFC, Building 2, Room 8
# November 8-9, 2005

Present:
*Committee members:* Josh Grindlay (chair), Jim Buckley, Jim Ling, Rene Ong (1st day), Wim Hermsen, Don Kniffen, Alan Marscher (by phone), Reshmi Mukherjee, Greg Stacy, Mark Strickman

*Ex Officio committee members:* David Band, Rick Harnden, Julie McEnery, Chip Meegan (by phone), Peter Michelson (1st day), Steve Ritz, Rita Sambruna, Kathy Turner

*Colleagues:* Lynn Cominsky (by phone), Robin Corbet, Mike Corcoran, Dave Davis, Masa Hirayama, James Peachey, Giuseppe Romeo, Tom Stephens, Dave Thompson

**Tuesday, November 8:**

*Welcome (Josh)*—Closing AIs are a major goal of this meeting. The consensus of the Committee is that the minutes from the past 2 meetings are satisfactory. Note that documents are now linked to the AI page (http://glast.gsfc.nasa.gov/ssc/resources/guc/ais/).

*Mission Update – the view from NASA HQ (Rick)*—HQ is happy that the LAT's 16 towers are done. The GBM is on track. However, the spacecraft is having "issues" that form a schedule threat. Overall, GLAST is a bright spot in HQ's mission portfolio. The overall science budget is a problem, but for GLAST is less of an issue (unless there is a schedule slip). Restoration of advisory committees is in progress, with a similar structure for astrophysics. The hiring freeze at HQ provides less flexibility for organizational reshuffling; HQ downsizing is in progress (mostly by attrition).

*DOE view (Kathy)*—DOE is happy that LAT's 16 towers are done. DOE is also currently without a budget.

*Project and Mission Status (Steve)*—The construction of the spacecraft is in progress. There are two major issues: the designed release mechanisms have failed on other programs (on the ground, not in space), GSFC doesn't want to use the design, and the replacement may have cost and schedule consequences; and the spacecraft computer's BA RAD7500 boards have contaminants and were returned (the LAT's boards are satisfactory).

Launch is probably 1st week of September 2007, changed to accommodate a Mars mission. Development of the launch vehicle is proceeding. The Delta II Heavy will have excess lift capacity that will be used to reduce the orbital inclination by a small amount, reducing the GBM's electron precipitation rates.

The ground system is ramping up, with MOC releases, weekly meetings (GOWGs), ground readiness tests (GRTs), TIMs, etc.

Schedule: Instrument assembly will be completed in early '06, and integration onto the spacecraft in mid-'06.

*LAT Report (Peter)*—The 16 towers are complete! The ACD will be integrated onto the instrument on 11/15. The LAT will be shipped to NRL for environmental testing on 1/24/06, and then will be shipped to General Dynamics for integration into the S/C in 6/06. The TKR efficiency is >99.5% (the spec was 98%). CAL and ACD were completed satisfactorily. I&T has been going well, as shown by a movie of muons going through the 16 towers! A beam test is planned for the spare towers (not the flight 16 towers), probably at CERN.

Peter gave a presentation on GLAST to the Astronomy & Astrophysics Advisory Committee (AAAC) on 10/11/05. The AAAC is focused on interagency (NSF, NASA, DOE) issues in astrophysical missions and projects, and therefore GLAST is of great interest. The emphasis of the GLAST presentation was on the project's overall status, and discussion of the facilities that are important for multiwavelength observations which are vital for GLAST science. Anne Kinney said that the 10% rule for GI funding supporting ground-based observations could be relaxed for GLAST (it has been for Swift). A goal of the presentation to the AAAC was to inform other agencies that their facilities are relevant to GLAST.

The presentation to the AAAC will be posted on the GUC website. Further discussion of the multi-wavelength support issue was taken up later in the meeting (see 130pm Agenda item).

Steve and Peter are discussing with VLA Director Jim Ulvestad possible arrangements for joint NRAO-GLAST observing time allocation; the details will be discussed when the agreement is more mature.

*Other mission activities/issues (Steve)* —The IOC has been formed for the 1st GLAST Symposium, and has held a telecom. The purpose of the Symposium is to be a major meeting on gamma-ray astronomy. It will be held in February, '07; the choice of venue will determine the exact date. The format is mainly plenary sessions with long poster session, and only one parallel session. There will be side meetings, including user workshops and side meetings related to future missions. Care will be taken to invite significant international participation. A GSSC booth will present the website and the SAE, and elicit responses. We anticipate that major discoveries will be announced at the second symposium, which will be held after launch. These first two GLAST Symposia will be held on opposite coasts. This report closes AI#13.

The Committee initiated a discussion for how to reach out beyond the gamma-ray community. We should set up a speakers bureau. Also, we should set up a gamma-ray school; the question is when (relative to the Symposium) such a school should be scheduled. This will be discussed later in the meeting.

Two other issues were introduced by Steve for the Committee to consider:

1. The data loss requirement in the mission's requirements is being clarified: what is the timescale over which 2% loss is measured? Because the MOC is not staffed on weekends, the criteria for the FOT to come in will be codified.
2. Should Windows be supported by the SAE? Should the tools be web-based? The GUC will form a subcommittee to collect comments from the entire GUC on the importance of Windows support (the sub-committee will be chaired by Jim B., and it members will be appointed at the January 13th telecom).

*Stellar aberration correction (Julie)* —As a result of relativistic effects, the velocity of an observer results in an apparent shift in the position of celestial sources. The motion of the earth around the sun causes as much as a 20.5" shift. There are 3 places to apply the correction: to the coordinates reported by the star-tracker (i.e., the spacecraft flight software should report the spacecraft's pointing in inertial coordinates); to the spacecraft pointing (i.e., the spacecraft pointing should be stable in inertial coordinates); and in the photons' directions. For Swift this was an issue because of Swift's small FOV instruments, where it is best not to correct the star-tracker position. But for GLAST's large FOV, where aberration corrections will differ for sources across the FoV, it is best to do so for the star-tracker. The application of these three corrections should be documented and discussed again at the next GUC meeting.

*Demonstration of Pulsar Tools (Masa)* —Masa started with a review of the problems of observing pulsars with GLAST: even for the Crab, only one gamma ray is detected for every 500 pulses. Pulsar analysis will require data accumulated over a year; and up to ~1/2 of the pulsars may be radio quiet (and therefore without ephemerides). The analysis thread is found in the SAE documentation. Tools can correct for the binary orbit (although most GLAST pulsars are not expected in binary systems), but do not provide the capability for searching for the binary orbital parameters. Tools can be run from the command line with all parameters supplied, from the command line with parameter prompts, or from a GUI. Fitting spectra over specific pulse phases requires general SAE tools (data selection, likelihood); the committee expressed interest in ensuring that end-to-end pulsar analysis is indeed possible. Jim Buckley suggested that we follow an open-source model, making it possible for the user community to review the existing code and modify the code by adding new algorithms; new contributions can be checked into a managed repository (e.g., CVS).

AI#18—There are two types of period search. The first is over a narrow P-P-dot range, and the other is a blind search. The first is currently implemented with four different test statistics, the second is under consideration. Blind period searches are computationally intensive. AI closed.

*GSSC Report (David)*:

*Tools for mission & obs. planning (Robin)* —David pointed out that the GUC should be aware of certain assumptions behind the scheduling tools. The design is for a mission that has a large fraction of pointed observations although we expect that survey mode will be a large fraction. Josh asked about pointed observations of targets near each other. Tako can optimize the observations; in particular the 17 point orbit profile can be used to cover a number of sources.

*"Ratification of GSSC Assumptions:"* Discussion of how to review GSSC support tools and plans for their release (David)—The consensus is that giving people the opportunity to play with the SAE >3/4 of a year before the public release will be a wasted effort and may frustrate people. Therefore, either the SAE should be released earlier or the Symposium workshop should not give people the opportunity to play with the tools. The more general issue of early release of tools and what, if any, should be made available for a Workshop at the GLAST Symposium will be re-visited at the next GUC meeting. There is also a concern that the GUC is not a large enough group of beta-testers.

The consensus is that a subcommittee of the GUC—Don, Rita, Reshmi, Wim, Jim, Mark—will beta-test the GI proposal tools in September, '06.

*Multiwavelength observations and inter-Agency planning/coordination: report from AAAC discussions (Peter)* —We assume that GRB follow-up capabilities will still be present for GLAST. An accurate diffuse model is crucial to key GLAST science objectives. Therefore we need high latitude CO maps, $C^{18}O$ observations of lines-of-sight that are important scientifically and/or that have high optical depths in CO. The LAT team is reviewing what multi-wavelength observations are necessary. Currently these include blazar monitoring, CO (etc.) surveys, and pulsar ephemerides. The Committee discussed how the GUC might issue a statement of support and help plan for a vigorous multiwavelength program in conjunction with GLAST. Although future discussions with the AAAC might be useful, bilateral discussions between GLAST and other projects are probably the most productive in the short term. Josh reminded the Committee that the Great Observatories all have multiwavelength joint proposal capabilities (e.g. Chandra-HST-NOAO, for example) and that now is the time to explore how to setup similar arrangements for GLAST. A focused task force of the GUC is needed to develop plans, in conjunction with the LAT team, for multiwavelength opportunities for GLAST.

*New AI#26*—The GUC multiwavelength task force (in consultation with the LAT and GBM teams) will write a statement on multiwavelength observations and develop an implementation plan. This task force should report by the next GUC meeting. Task force: Jim B., Rene (chair), Reshmi, Rita, Josh, Peter, Dave, Chip, Wim

*Action Item discussions:*

*AI#1—Policy statement for Pointing vs. Survey mode (Jim B. and Julie)*—Various studies have calculated the relative exposure of different modes, and others have considered figures-of-merit (e.g., non-uniformities resulting from pointed observations).

GRB afterglows—autonomous repoints lasting 5 hours are the current default, but the duration can be revisited after launch based on experience. The current policy is that the autonomous repoint frequency would be based on whether the burst is in or out of the LAT's FoV. The GBM intensity threshold for an autonomous repoint would be based on frequency that bursts with greater intensity occur. But the GBM should detect one burst per week in the LAT FoV, which is the planned frequency; therefore, why apply a threshold?

Blind pulsar searches—the number of trials is proportional to $T^2$ (T is the time over which the observations occur), and therefore the difference of pointing vs. scanning on the significance of a detection is not large. The good sky coverage resulting from scanning is best for studying an ensemble of pulsars.

Young high P-dot pulsars will have glitches, and accumulating exposure over short times (i.e., pointed observations) will help determined their ephemerides.

Pointed observations will hurt multiwavelength campaigns, observations of other sources, and time monitoring (i.e., producing artifacts in time series analysis).

Pointed observations of short AGN flares would be best, but the occurrence of such flares can not be predicted.

Pointed observations may be useful for time-critical phenomena, but the threshold for such observations must be high to avoid disrupting other time-critical observations.

Recommendation: The scanning to pointed observation breakdown should be ≥4:1 in relative exposure time (i.e., the baseline plan for pointed observations should not exceed 20% of the total observatory time). The pointed observation allocation should include GRB autonomous repoints and TOOs. Thus the TAC should consider this breakdown in accepting the ranked observing proposals. The NRA should state that pointed observations must be strongly justified. A statement summarizing the above conclusions will be written.

A pre-approved TOO needs to justify the gain in sensitivity on ~hour timescales.

AI#1 closed, and new AI#27 (see below) opened on writing the statement for the NRA (Jim B. and Julie).

*AI#5—GUC Charter – final concurrence (Josh, Don, Rick)*—At the last meeting we decided that the charter should address a few additional issues. A revised draft was presented, but GUC members proposed a few additional revisions. Membership should be scientists from 'relevant science' communities, not 'high energy astrophysics' communities. In the description of the development of the field through the GLAST Fellows program, 'future' was dropped. AI closed.

*AI#6—LAT data release in year 1* ***and*** *how/when to release "20 source list" for cycle 1 (AI 16) (Peter, Steve)*—The list has been circulated and posted. AI closed

*AI#7—Science Policy Document: development of the current draft from the outline (Steve, Roger)*—The outline is posted, and the document should now be developed, capturing new decisions from the GUC meetings. The document should be done by the GUC meeting in Fall 2006 so that it may be incorporated, as needed, in the NRA for cycle 1 to be issued in approximately December 2006. AI remains open, to be closed 12/06.

*AI#10a—Comments on PDMP (David)*—Comments were received and have guided the revisions. AI closed.

*AI#10b—NASA's HQ PDMP policies (Don)*—The old policies are being revised. Reopen AI and have Rick report on revisions.

*AI#19—Outline of SPD*—The outline has been developed and posted. AI closed.

*AI#11—Policy for GLAST Legacy Proposals (GLP) (Josh, Rita)*—Proposal: to achieve major science goals with long term teams, 3-5 ongoing GLP investigations should receive ~20% of GI funding. GLP investigations will typically last 1-3 years, but must be re-proposed each year, and multiwavelength programs must fit within the NASA budget constraints for GLAST. The directions to the peer review panel are crucial; the current concept is that a continuation proposal should show that a project is progressing properly, and that the science is still relevant. Justifications for a GLP could be a set of dataproducts, or a large team is required, etc. However the first and primary justification is to achieve a major science goal or set of goals that require observations or analyses that exceed significantly the duration and/or funding available for the normal GI program (1 year and $80-100K, respectively). Having GLPs counters the tendency to grant a little funding to many projects. GLPs should not duplicate instrument team projects. AI closed, policy stated.

*AI#24—Technical review of proposals (David, Steve)*—The issue of conflicts of interest is serious, and therefore the experts assigned by the instrument teams to review GI proposals should sign a confidentiality statement. AI closed.

*AI#23—FSW Schedule (Erik, Steve)*—The LAT flight software (FSW) has been and will be reviewed. The LAT has an independent FSW test organization. Builds will be tested this month. Pre-ship review will be 1/24/06. LAT FSW is under configuration management. The GBM FSW is also progressing. Spacecraft FSW is progressing; milestones are tied to availability of flight boxes (used for both development and testing). Milestones were shown for all elements. AI closed.

*AI#14—GSSC Text for end-to-end processing of GLAST data (David)*—Text started but not completed. AI remains open.

*AI#20—Instrument and S/C ops parameter compilation and database (DB) management. (Steve)*—Remains open

*AI#21—How to fix the EPO format/control problem? (Lynn, Steve, Rick)*—Rick reports that the policy has not changed. At one point there was to be only one NASA booth at a conference(!), but now missions are permitted to have their own booths. We should keep challenging the policy. There is hope that the change in personnel will lead to a change. AI closed, although the GUC will issue a statement if needed.

**Wednesday, November 9:**
***Continue work on resolving Action Items:***

*AI#15—GSSC Plan for GI proposal tools released for the GLAST Science Symposium and the 1st NRA (David)*—The source detectability tool should include a simple method for estimating the sensitivity of extended sources. Both this tool and WebSpec should include models such as the $\pi^0$ spectrum and broken power laws. AI closed.

*AI#17—Draft Schedule for software releases for the 1st NRA (David)*—The schedule should be kept up-to-date and posted. The nature of the workshop at the Symposium and the SAE release date need to be resolved. However, the schedule exists, and therefore the AI is closed.

*AI#12—Planning for GUC Beta-test after DC2 (Steve, David)*—The plan was accepted and is posted on the link from this AI on the website: the GUC beta-test will be held in early November, 2006. Additional beta-testers should be invited based on the availability of space. The platforms on which the SAE will be running at the beta test should be determined and advertised. AI closed.

*AI#22—GUC listserve (Steve)*—The listserve has been set up and is being used. The list of people on the listserve will be distributed periodically, and the mail archive is now accessible. AI closed.

*AI#25—Review of size of the GI program*—The projected size of the GI program is posted under the link from this AI on the website. The AI is thus closed, but GI program size should be monitored.

*Summary of SWG Activities (Steve)*—Steve reported on the last SWG meeting and the very successful science mini-symposium on the Galactic Center. The science mini-symposia accompanying the SWG face-to-face meetings will be phased out in favor of the Science Symposia. The SWG will eventually be merged into the GUC.

A new GUC member needs to be appointed, and someone international would be preferable. Various names have been proposed. Suggestions should be e-mailed to Josh, Rick and Steve.

*GBM Overview and Schedule (Chip – by phone)*—All the flight hardware has arrived at NSSTC and has been accepted. The hardware has been linked together and is undergoing functional testing. The burst trigger has been tested! The GBM just completed the pre-environmental review by a GSFC review team. The review went well, with 3 RFAs issued. The most serious RFA is the EMI problem (grounding issue); a fix will be tested soon. There is a discrepancy between the plans and actual placement of some power boxes. Formal EMI testing is scheduled for December, Thermal-Vac for January, and delivery to General Dynamics on May 1.

*Planning for DC2 (Julie)*—The DCs are progressively more ambitious; DC2 will include a month of simulated data. Currently the effort is focused on the detector simulation and event reconstruction, both of which have been improved.

*Report on GLAST E/PO (Lynn, by telecon)*—Funding for the teacher ambassadors was cut, and therefore the two least-involved teachers were dropped from the program. To get a new GLAST card game, GUC members should send Lynn their postal address. Liam Neeson will narrate the

planetarium show (opening in Denver); the graphics are spectacular. The PBS show will be in ~May. A draft of a letter from the E/PO programs of many different missions complaining about NASA's new graphics guidelines was leaked prematurely to the person responsible for the guidelines (Debbie Rivera, HQ/PAO, 202-358-1743, drivera@hq.nasa.gov), and consequently the guidelines are being revised.

*GUC Second Day of Meeting Science Talk:* "Swift: Science and Ground Operations" *(Frank Marshall)*—The GRISM on the UVOT has not been used yet on burst follow-ups. The XRT's detection rate is ~95% but the UVOT's detection rate is only ~30%. Swift is observing afterglows to have much more structure than initially thought. The X–ray afterglow often is continuous with the prompt gamma-ray emission. Occasionally flares are seen in the X-ray afterglow, sometimes with greater fluence than the gamma-ray emission. Swift is detecting bursts with larger redshifts than other missions. The short gamma-ray bursts are usually associated with low redshift galaxies, some of which are ellipticals: observations are consistent with the merger of neutron star-neutron star or neutron star-black hole binaries.

The Malindi and ASI systems have been very reliable; the USN has been used very little. TDRSS/DAS was initially not as reliable, but now is working well. The BAT is working well. The XRT has been successful, despite the cooler failure. UVOT was 'safing' frequently, but this has been mitigated. The spacecraft has had some constraint problems. Scheduling is more time consuming, in part because of the additional constraints (e.g., imposed by the failure of the XRT's active cooling). The quick-look data was initially delayed; the data volume is larger than planned.

Lessons learned: A motivated operations team can overcome many problems. The simulations before launch did not detect many of the problems because they are rare. The planning software was not tested sufficiently before launch. The science analysis software was incomplete at launch. Documentation, procedures, etc., created by the instrument teams for use by the MOC were not sufficient. The training of the FOT during I&T was valuable.

Steve reports that General Dynamics is applying lessons learned from Swift to GLAST.

The Swift GI program in Cycles 1&2 have supported theory, data analysis, correlated observations, and not allowed proposals for Swift observations. In Cycle 3 GIs can propose observations.

*Gamma-Ray School (Rita)*—Rita finds that the non-gamma-ray community knows little about GLAST and therefore we need more outreach. A school would help educate scientists, including X-ray astrophysicists, in the methods of gamma-ray astronomy. The X-ray schools include hands-on practice. The audience is mostly young astronomers. When should the school start? Chandra and Integral started their schools a year after launch. Starting long before data are available would be premature. The GLAST school should be before Cycle 2 proposals, but not in the middle of a semester. Therefore the school should be in June, '08, and the deadline for Cycle 2 should be postponed to July, '08. Rita is willing to organize the school. The GSSC will have to bear the burden of running the school since the LAT team will be very busy, at least the first time.

Other outreach is being done. The GLAST booth is sent to meetings. There are GLAST sessions at major meetings, and GLAST posters at topical meetings.

*GUC meeting schedules*—This meeting was not well attended despite having had its date fixed (with most of the committee present at the previous (June) meeting in agreement with this November date). It was agreed our meetings should be Monday-Tuesday or Thursday-Friday. We need 2 face-to-face meetings a year. One such meeting will be November, '06, when the SAE tools will be beta-tested.

We set the next meeting to be on May 8-9 (11-12 as backup) at GSFC. PLEASE MARK YOUR CALENDARS NOW.

We shall continue with interim meetings (~1h) by telecom on a bi-monthly basis. The next such Telecon meeting will be on Friday, 1/13/06, at 11:30am EST.

Adjourned at 2:15 pm.

## Action Item Disposition Summary

Closed AIs: 1, 5, 6, 10a, 11, 13, 15, 17, 18, 19, 21, 22, 23, 24, 25
AIs remaining open: 7, 14, 20
AI reopened: 10b

## New Action Items

AI#26—The GUC multiwavelength task force (in consultation with the LAT and GBM teams) will write a statement on the required multiwavelength observations and develop an implementation plan. This task force should report by the next GUC meeting. Task force: Jim B., Rene (chair), Reshmi, Rita, Josh, Peter, Dave, Chip

AI#27—A statement will be written and posted on the GSSC website summarizing our conclusion that in most cases pointed observations provide little overall benefit, and that GI proposals for deviations from survey mode must be strongly justified. The nominal share of total observing time for pointed observations, including GRB follow-ups and TOOs, was set at 20%. Assigned to Jim B. and Julie.

AI#28—Which SAE tools should be released at the Science Symposium and in what form? When should the full SAE suite of tools be released? Assigned to David and Julie.

# Appendix—Meeting Agenda

See also http://glast.gsfc.nasa.gov/ssc/resources/guc/051108/ to which the presentations are linked.

**Tuesday, November 8:**

8:00 Coffee and rolls and pre-meeting discussions and consultations
9:00 Welcome and Introductions (Josh, Steve)
9:05 Review June '05 meeting and Sept. '05 Telecon Minutes (Josh)
9:15 Mission Update – the view from HQ (Rick)
- celebration of a 16-tower LAT
9:25 Project update, including Spacecraft progress (Steve)
9:45 LAT Overview and Science Update (Peter)
- overall progress; discussions with AAAC in Oct.
10:15 LAT Schedule (Lowell Klaisner—by phone)
- current status, upcoming milestones
10:30 Break
11:00 Mission schedule and activities (Steve)
11:20 Demonstration of Pulsar Tools (Masa Hirayama)
12:20 Lunch (in conference room) – pick up lunch and munch over GSSC presentations…
12:30 GSSC Report (David)
- Tools for mission & obs. planning (Robin Corbet)
1:00 "Ratification of GSSC Assumptions:" Discussion of how to review GSSC support tools and plans for their release (David)
1:30 Multiwavelength observations and inter-Agency planning/coordination
- report from AAAC discussions (Peter)
2:00 Those eternal Action Items: lets get most of them **closed**!
(Open AI's listed by number; *some likely needing more discussion* than others)

1. *Policy statement for Pointings vs. Survey* (Jim B., Julie and ALL)
5. GUC Charter – final concurrence (Josh, Don, Rick)
6. *LAT data release in year 1* **and** *how/when to release "20 source list" for cycle 1 (AI 16) (Peter, Steve)*
7. *Science Policy Document: current draft from outline (Steve, Roger)*
10. Update on PDMP (David)
11. *Policy for GLAST Legacy Proposals* (Josh, Rita)
12. *Planning for GUC Beta-test after DC2 (Steve, David)*
13. Update on GLAST Sci. Symp. Planning, User Communications (Steve, David)

3:30 Break
4:00 Resume the AI challenge

14. GSSC Text for end-to-end processing of GLAST data (David)
15. GSSC Plan for preparation of Tools for GLAST Sci. Symp. And 1st NRA (David)
17. Draft Schedule for software releases for 1st NRA (David)
18. Instrument and S/C ops parameter compilation and DB mgt. (Steve)
19. How to fix the EPO format/control problem? (Lynn, Steve, Rick)

5:00 Discussion session of Committee
- general discussion and possible new action items
5:45 Adjourn
6:30 GUC Dinner at local restaurant, TBD.
Directions will be provided

**Wednesday, November 9:**

8:00 Coffee, rolls to feed conversation/collaboration…
9:00 Remaining discussion on any open AIs (Josh)
- GUC convergence on remaining open AIs:
22. GUC Listserve
23. Flight Software Milestones
24. Technical Review (PDF)
25. Comments on GI Program Size Justifications

9:45 Summary of SWG Activities (Steve)
10:15 Planning for DC2 (Julie)
10:40 Break
11:10 GBM Overview and Schedule (Chip – by phone)
11:30 Report on GLAST E/PO (Lynn)
12:00 Lunch (in conference room) and *Science Talk* (continued, GUC day 2 lunches)*:*
Frank Marshall—Swift: Science and Ground Operations
1:00 Open discussion of Committee
- NEW business; what else should we be focusing on (not more AIs?)
- action items; writing assignments; issues raised for Project/GSSC
- date for next GUC meeting

2:30 Adjourn