

NAOMI Progress Meeting 22/23 Sep 97 - Notes and Actions

wht-naomi-82

Internal document number: AOW/GEN/AJL/18.0/09/97/Sep97 Progress Meeting Notes

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(NOTE: AJL has sent to each site 2 copies of compiled overheads etc presented at the meeting).

RGO/ROE Opto-mechanical work.

PTP and MW presented OMC opto-mechanical up-date. OMC design now contains double-pass folding flat; field lens design slightly modified and dichroic compensating plate no longer required.

A1: JMDS to include estimate of adjustment times to set up aligned system on re-installation at GHRIL .

A2: PTP to include 3 position setting for fold flat to allow for autocollimation tests.

A3: MW and SPW to standardise on wavelength used for system optimisation.

SPW and AW reported on WFS opto-mechanical progress. 2nd fold pick-off strengthened; rail system improved to double rail support. Still options open for encoder system on rail, although there is a preferred off-the-shelf solution if space allows (depends on detail of cabling needed).

A change to 2CCD mode from 1CCD mode would not be motorised. Bench mounting for the WFS is by 3-point kinematic mount.

Tests on fused silica lenslets (Gemini) showed excellent results on 6 x 6 array. Focal length achieved to 1% (spec 3%) for focal length of 24.3mm. Essentially diffraction limited.

A4: TG to advise on extent to which Test Focal Station can be left configured for NAOMI.

ELECTRA Mirror

DB summarised progress on strain gauges and DM mounting.

Strain gauge leads wrap in nominally optimal way on a former around HV drive leads. Goal is ?40? V noise input at preamp input. Preamp couldn't be used on E0 as ground loop drove oscillations. New mirror housing design proposal completed shortly - will be sent to ROE for comments.

It was agreed that ROE has responsibility for design of stage and ensuring effect of C of G changes as DM is moved are minimised.

It was agreed that the DM flat does not go on the translation stages.

A5: DB to perform first-order calculation which confirms (or otherwise!) that noise I/P from high voltage leads should not be significant (effects of twisted pairs, non-perfect winding etc).

A6: Durham / ING via TG to agree on DM packaging / handling when international transport is required.

(Later, but best reported here). RMM gave summary of E0 and lessons learned from it. Successful, but (mostly) software changes required to improve debugging, stability, set-up. Optics and mechanism control worked very well.

Alignment

RAH summarised OMC mounting jig and metrology concept and associated requirements on WHT performance wrt alignment of axes. It was agreed set-up should be done wrt rotator axis. Variability in Nasmyth 'calibrates' is ~ 4-5 arcsec.

A7: TG to note that it is important that Nasmyth feed beam set up is correct before NAOMI installation(s). Note recent problems with Nasmyth flat.

A8: TG to ensure GHRIL bench flatness survey is carried out. Info on global non-horizontal component along or across bench, 'local' tilts, any gouging effects and effects of loading equivalent to WFS installation should be obtained. (NOTE: ultimately we should check that both benches deform similarly under load). Local gradients over ~150mm (typical mounting dimension) are particularly important.

A9: TG to follow up on suggestion that kinematic mounting allowing v accurate repeatable mounting of the alignment telescope should be used.

A10: MW,RAH to describe further the initial setting up procedures for NAOMI, including key checks and actions if checks fail.

MW presented brief preliminary analysis of alignment tolerances wrt output at OMC and pupil movement. The numbers will be confirmed by PDR (current versions are in notes circulated by AJL).

A11: ABG/SPW to specify pencil beam requirements for WFS alignment check on installation.

A12: ROE to respond to this when next major work on NCU takes place (sooner if reasonably possible).

A13: MW/PTP to confirm that proposed check of NCU f/11 output beam direction and ratio has sufficient sensitivity to determine angles are within tolerance.

Electronics

No progress on ROE side, but no changes required so far from PDR concepts.

ABG presented up-date on RGO electronics progress, including conceptual earthing scheme (shown in circulated notes from meeting). It was pointed out that in terms of numbers of components / EPICS records required, ROE electronics was small relative to RGO.

ABG presented summary of 2CCD concept and status, plus noise figures and estimates for SDSU controller performance. On-the fly change of CCD chip readout may not be possible.

A14: JMDS to respond to RGO offer to deal with OMC/NCU EPICS requirements as an extension of preparing their own EPICS system.

A15: RMM/RAH to advise on relaxation of on-the-fly change from requirement to a goal / upgrade.

A16: DJR/GTR/MRJ. Interface between Durham and RGO on WFS data processing to be clarified (do as part of ICD, but quite urgently). AJL should be advised of resulting proposal as this relates to WP boundaries.

Software.

GTR summarised current plan for architecture and planned developments. Emphasis was on risk analysis and how failure, over-run and reliability risks improved for each NAOMI stage.

A17: GTR to put summary of current architecture proposal on BSCW.

It was agreed that GTR is responsible for initiating top-level ICD definitions relating to software; however he could handle this by delegation where appropriate.

A18: GTR to supply list of client commands.

NAOMI Handling and the GHRIL Environment

RAH presented summary of system handling at GHRIL and of GHRIL environment requirements.

A19: RMM or delegate to put summary of environment data obtained on GHRIL so that project members can identify if there is particular information which might help them.

A20: RAH to include 2 Work Stations in power input budget for GHRIL control room.

A21: TG to check on results of optical surface coating tests and to continue them to obtain more info by OMC CDR. Useful data: current reflectivity/scattering, effect of a standard clean, further degradation at GHRIL in controlled location.

A22: TG and AJL to determine relative priority of GHRIL vs TFS developments, so maximise resources.

ICD status

RAH summarised ICD status (none written). Reasons were discussed, as was most appropriate format.

It was agreed that ICD sections should be produced and RAH would organise them into files as appropriate.

It was agreed that software ICDs needed a second level of detail which was significantly greater than that required for other ICDs.

Project Plans discussion

AJL summarised the results of combining the plans sent by the local managers. Currently the OMC/NCU is the critical path item, followed by the NAOMI software.

It was felt very strongly that the overall timescale (completion by Jan 2000) was much too long and every effort must be made to bring the 'natural' (no remedial action) timescale forwards by ~6 months.

JMDS presented ROE progress. OMC would have an opto-mechanical CDR, followed by an NCU CDR. Detailed project plan was being prepared for CDR, current presentation was still a snapshot. It was proposed in the meeting that system integration could be handled differently, with more integration 'by parts'. TG noted that past experience showed that OAP delivery from Sorel could be slower than promised (good product, though).

A23: RAH/AJL to define project requirements for revised CDR scope. This should include level of ICD completion required for CDR.

A24: JMDS/MRJ/DJR/RAH/AJL to meet to look for ways to improve timescale required for integration, within 2 weeks of OMC CDR completion.

A25: JMDS to define CDR date ASAP.

A26: JMDS to include an electronics control system review for ROE
OR

A27 MRJ/JMDS/RAH to agree on joint Electronics (EPICS) control system review for WFS and OMC/NCU. Propose date for this system control review 29/01/98 (current WFS timescale).

It was agreed that Durham should be the location for system integration (moved from 'default' option to 'positive intention'. Would now need formal decision (and very good reason!) to change from this.

MRJ presented RGO work schedule, including software milestones. RGO will proceed with nominal collimator, defining final version once OMC OAP test results are known. WFS CDR should be completed before Christmas.

TG confirmed that he was not aware of any changes in controller strategy - SDSU is still the controller of choice for standardisation.

A27: MRJ/RAH to discuss risk in early order of WFS optical components and to advise AJL so that appropriate authority can be obtained.

DJR presented ELECTRA/NAOMI plans, with a focus on work to E1.

Risk: no control on delivery of DRAL re-work on WFS camera; may be December
Potential use of SDSU controller/camera was discussed if DRAL camera option fails to materialise. SDSU system may be in place by June. A key milestone was a WFS/strain gauge prototype system test in scheduled for Jan 98.

Staff issues: Electronics and s/w engineers not likely to be in position before Jan.

Replacement DM: arrangement with Tom Price at Xinetics to supply one actuator for testing with ELECTRA drive amps. Need effort to negotiate warranty deal.

Plan is for E1 run date in June.

Note: TEIFU scheduled to be ready for July

A28: DJR/DB to build environment (low temperature operation) test into Jan milestone

A29: DJR to look at effort problem for continuing camera testing once it is returned from DRAL.

GTR summarised software development plan.

N-A limited solely by number of people, 28/02/98

N-A: major uncertainty is time to prepare client support library. Schedule is realistic for 1 person working full time from Feb. Could pull that back by 3 months with extra part time effort. Also would get safer schedule and quality.

A30: AJL/GTR to discuss how extra effort may be provided to bring software timescales forward.

NAOMI-C as a final deliverable could be a reasonable goal if above happens if the extra effort is found, and as long as delayed introduction of some functionality is acceptable. ICDs (lower level) must be settled before N-C starts (N-B should actually freeze (nearly) all ICDs). Durham should be able to fulfil their part of the effort required for this, from turn of year once s/w engineer is in place.

Interlock manager could be contracted out. Needs ICDs and 4 weeks preparation work to define job. Fall-back would be reduced interlock capability. The i/l should be ING provision.

GTR: is there a down time / observing efficiency spec?

A31: RMM/RAH to advise GTR on software reliability and efficiency spec.

Other discussion.

It was agreed that there is no requirement to change from 2CCD mode to 1CCD mode on an intra-night (or frequent inter-night) basis. A change would not be anticipated except in case of failure of one CCD.

Risks

Acquisition: concern expressed about small WFS field. Generally resolved once camera sensitivities are confirmed.

Could use IR system for acquisition for TEIFU.

A32: RMM to determine sensitivity limit on cheap camera.

ABG: risk on on the fly switching - may not be delivered

A33: DJR/DB to evaluate need for humidity test on electronics, esp DM circuit

Cleanliness: note there are 30 surfaces, many of which are quite exposed. - up-date by CDR.

A34: DB to advise whether ELECTRA mirror can stand CO2 snow cleaning.

Vibration!!

NOTE: Keck FSM was on nylon pad.

A35: TP to determine if this can be generic approach for NAOMI (appropriate response to be ready by OMC CDR).

Can we do check on GHRIL? (Keck determined FSM was the vibration driver, not the telescope but the FSM was an uncompensated mass in their case).

Other actions.

A36: PTP to give Tom layout so crucial bench areas can be indentified for flatness survey.

A37: TG: give origin of start of hole pattern wrt corner of bench

A38: TG to provide general update on cooling policy at GHRIL, by ~ OMC CDR (late October).