# TBL Scientific Council meeting spring 2025

Date : 20 June 2025

Place : OMP Toulouse salle Lyot + zoom

Attending : Evelyne Alecian, Jean-François Donati, Marc Ferrari, Eder Martioli, Antoine Petit, Philippe Stee, Arturo López Ariste, Philippe Mathias

Excused : Hervé Bouy, Jean-Baptiste Daban, Rémi Cabanac

Invited : Laurent Guesdon (TBL), Marielle Lacombe (SPIP), Anne-Laure Melchior (TAC T2m)

## Agenda

- introduction of SC members
- latest news of the telescope and technical update
- implementation of large programs at TBL
- validation of NeoNarval and its DRS, see document at: https://box.in2p3.fr/s/fnHCNcXq6ZBz6s7
- update on improving the robustness of the observations and TBL modernisation
- SPIP planning, impact on observations, anticipation of the combined NeoNarval-SPIP usage with VISION
- update on weather statistics
- organisation of a TBL users' meeting

# Minutes

### *1. Latest news of the telescope and technical update*

Telescope maintenance (M1 realuminising) and updates (VISION alignment checks) have progressed nominally until fiber failure by the end of February. New fibers arrived at the telescope in June, delaying on-sky tests of several updates : camera chiller, improvement of the guiding system using the VISION optical path. First NeoNarval tests on calibration data are satisfactory. Preliminary tests on the effect of the camera chiller and guiding efficiency need to be further confirmed.

Points requiring follow-up:

- velocimetric checks (standard star, hot Jupiter-host, Rossiter-McLaughlin measurement) should be pursued to quantify the improvement brought by the camera chiller;
- the new guiding system is similar to that used at CFHT but without a glass window, its performance under good seeing conditions should be checked;
- the overall NeoNarval efficiency displays a sharp drop below 450 nm, the TBL direction investigates a combination of effects related to the Wollaston prism, fibers and coatings and considers the effects of the slicer, optics fine-alignment or detector less likely.

### *2. Implementation of large programs at TBL*

Both the large fraction of recurring TBL programs (>50% of programs and >70% of telescope time) and surveys conducted among the T2m user community favour the implementation of large programs (LP). The TBL SC has agreed on the following recommendations:

- large programs should encompass a large fraction of the available telescope time, while preserving the possibility to conduct ambitious PI programs. Dedicating 50 to 70% of telescope time to LP has been discussed, the precise fraction should be decided;
- LP should be offered simultaneously at TBL (NeoNarval) and OHP193 (SOPHIE-RED) and be announced in advance to the T2m user community. Offering 2-year LP starting in semester 26B is foreseen;
- the option of a proprietary period extending to one year after the completion of the LP should be offered to account for the specificity of long-term monitoring programs (especially for velocimetry).

Points requiring further discussion:

- most VISION LP will require monitoring and scheduling, raising several questions on the validation of observations, the fraction of time offered to LP, the issue of scheduling and observational constraints indicated by PIs during PH2 ;
- several options are foreseen to evaluate LP proposals: telescope SC, T2m TAC, a specific LP TAC (possibly a reinforced version of the T2m TAC). The advice of external referees may be necessary if the evaluation committee lacks independent experts;
- the evaluation committee should also review LP progress reports. LP extension may be proposed based on completion rate and reports;
- after the first 2-yr LP, offering longer or rolling LP could be considered.

## *3. Validation of NeoNarval and its DRS*

The SC has discussed the document “On-going Validation of NeoNarval” by A. López Ariste & Ph. Mathias dated 15th December 2024 which presents the current status of NeoNarval’s properties and performances. It uses calibration and science data to show that NeoNarval is converging towards its nominal specifications and is already producing high-quality results for a wide variety of science cases relying on spectropolarimetric and velocimetric measurements.

Points requiring follow-up:

- the SC encourages the TBL direction to publish the document in an international journal to gather updated performances of NeoNarval and relevant bibliographic references;
- the document should also include excerpts of unpolarised spectra;
- the sharp drop of NeoNarval efficiency in the bluest orders remains a critical points for several sciences cases (see also §1);
- monitoring of the improvement of telescope guiding and its impact of the appearance of a null polarimetric signal;
- the origin of the low-resolution tail in the histogram figure 2;
- the factors that affect the stability of the shape of spectral lines (both individual and LSD);
- the possible hardware fix for the polarimetric cross-talk induced by the ADC and dioptric optics.

## *4. Update on improving the robustness of the observations and TBL modernisation*

Following the review committee that met in April 2024, a working group led by J.-B. Daban has been set up to address this issue with the aim of ensuring TBL operation by at least 2035-2040. The last rejuvenation of the telescope took place about fifteen years ago, and many subsystems require urgent attention, including the

dome. On the funding side, the INSU CSAA has been financing isolated refurbishment projects, and the current CPER funding focused on VISION will end in 2027-2028.

Points requiring follow-up:

- status evolution of the critical subsystems;
- funding agreement with INSU through CSAA or another instrument;
- funding possibilities through the next CPER;
- elaboration of a long-term upgrade plan, including a breakdown of manpower, time and costs.

## *5. SPIP planning, impact on observations, anticipation of the combined NeoNarval-SPIP usage with VISION*

J.-F. Donati and M. Lacombe have presented an update on the status of SPIP and its adaption to its environment at TBL, and discussed the ongoing and planned actions in Tarbes and at TBL. The status and development plan of the DRS, along with the progress of the instrument's scientific validation, have been presented. The SPIP team is planning to carry out commissioning and on-sky science verification in Q1 and Q2 of 2026, with the first scientific observations taking place at the end of 2026B. They plan to test SPIP first directly mounted on the telescope, then in a second phase through VISION.

Points requiring follow-up:

- maintenance plan on the compressors for the cryogenic system;
- the need for cooling of the Cassegrain module;
- test of the new slicer to be performed in the instrument;
- continuation of DRS development after the end of A. Carmona’s contract in December 2025;
- observing time required for SPIP-only commissioning vs tests achievable in VISION mode.

The combined operation of NeoNarval and SPIP has not been discussed in detail, this will be addressed at the next meeting.

## *6. Weather statistics*

Weather statistics for the period 2020–2025 indicate a slight downward trend in the number of observed hours per semester that amounts from 65% to 70% time loss due to weather over 2020-2024 (2025 statistics will be biased by the more than 3 months stop of the telescope due to the fibers failure). The meteorological statistics recorded at the Pic du Midi from 2020 to 2023 reveal the effects of climate warming across all seasons, except possibly in spring. Over the same period, changes in humidity are much more varied. One possible interpretation of the warming—far more evident in maximum temperatures than in minimum temperatures—could be the presence of clouds.Two new monitoring systems were installed at the summit in the summer of 2025: one for seeing conditions and the other for cloud cover.

Points requiring follow-up:

- consolidation of long-term weather statistics
- usage of the weather station for TBL staff and data access for observers;
- inclusion of SkyProbe extinction measurements in data headers;
- seeing measurements through the guiding camera ;

## *7. organisation of a TBL users' meeting*

This point will be addressed at the next meeting.