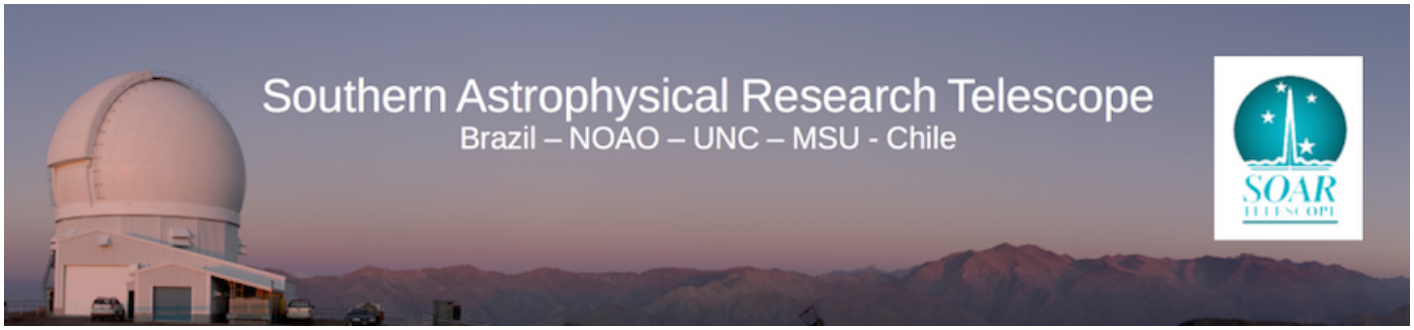

Published on *SOAR* (http://www.ctio.noirlab.edu/soar)

Start of SOAR-AEON observations for the 2019B semester

Submitted by cbriceno on Wed, 2019-07-31 17:36

Astronomical Event Observatory Network

Updated Aug 8, 2019

The night of Aug 6 set a milestone for SOAR, being the first of a total of 20 nights (199h) scheduled for the 2019B semester in AEON-queue mode [1]. All of these programs were NOAO programs approved through the standard TAC process; consequently all of the time is NOAO time. Eight regular programs and four ToO programs span a wide spectrum of science cases, ranging from characterization and study of Near Earth Objects, Microlensing Events, young SN, RR-Lyrae stars in ultra faint dwarf galaxies, solar-

like pre-main sequence stars, to follow up of Galactic Transients and Gravitational Wave events.

The first night of observing was successful, with excellent observing conditions. A total of 10 distinct targets were observed (16 science exposures plus associated calibrations). The next scheduled night is August 10, with additional nights at a rate of 3-4 per month for the remainder of the semester.

The **Astronomical Event Observatory network (AEON)** [2] is a collaboration between Las Cumbres Observatory (LCOGT) [3], NOAO [4], SOAR [5] and Gemini [6] aimed at building an ecosystem of world-class telescope facilities for follow up of transients and time-domain astronomy, in preparation for the LSST [7] era. AEON builds on the infrastructure of the existing network of small telescopes run by LCOGT, to incorporate 4m and 8m class telescopes.
SOAR is the pathfinder facility for bringing the larger telescopes into a highly automated system running unsupervised software that generates a dynamic and flexible schedule every 15min or so.

At the start of AEON operations SOAR is offering the Goodman instrument [8]with a subset of modes: imaging with the VR, SDSS-g, SDSS-r, SDSS-i filters, and spectroscopy with the red camera, 400 line grating and 1 arcsec slit. All data are obtained with 2x2 binning. Users can submit their targets anytime during the semester, through the LCOGT Observing Portal [9] or with custom software that connects to LCOGT via their API. On an AEON night the schedule is downloaded from LCOGT and executed by software that runs both the telescope and Goodman instrument; guide star and on-slit target acquisition (for spectroscopic observations) are the only steps still done manually. Users then can obtain the status of their observations through the LCOGT Observing Portal [9]and retrieve their raw data. Data reduction can be done in a very automated way using the Goodman Spectroscopic Data Reduction Pipeline [10].
More details of **observing with AEON** [11] can be found in the LCOGT-AEON web site [2].

We intend to expand the range of Goodman configurations available in queue mode, and eventually add additional instruments such as TripleSpec 4.1 [12]. The underlying objective is to provide flexible observing in an era of complex observing requirements ranging from large survey programs to focused time-domain programs. Interested users - including those affiliated with other SOAR partners - should watch these pages and calls for the proposals for additional opportunities and information.

Updates to available instruments or observing configurations for semester 2020A will be provided at the same time as the NOAO call for proposals is issued in early September. We are also very much interested in including programs from other SOAR partners in the AEON queue.

Want to learn more? Developing the AEON Network will be a major topic of discussion at the upcoming TOM Toolkit Workshop [13].

Note: An earlier version of this story referred to Las Cumbres Observatory by the acronym LCO. This has been updated to LCOGT to avoid confusion with Las Campanas Observatory.

Links
[1] https://lco.global/aeon/soar-aeon-schedule/
[2] https://lco.global/aeon/
[3] https://lco.global/
[4] https://www.noao.edu/
[5] http://www.ctio.noirlab.edu/soar

[6] https://www.gemini.edu/
[7] https://www.lsst.org/
[8] http://www.ctio.noirlab.edu/soar/content/goodman-high-throughput-spectrograph
[9] https://observe.lco.global/
[10] http://www.ctio.noirlab.edu/soar/content/goodman-data-reduction-pipeline
[11] https://lco.global/aeon/observing-soar-aeon/
[12] http://www.ctio.noirlab.edu/soar/content/triplespec-41
[13] https://lco.global/workshops/tom-toolkit-community-workshop/