Solaris, a global network of autonomous telescopes
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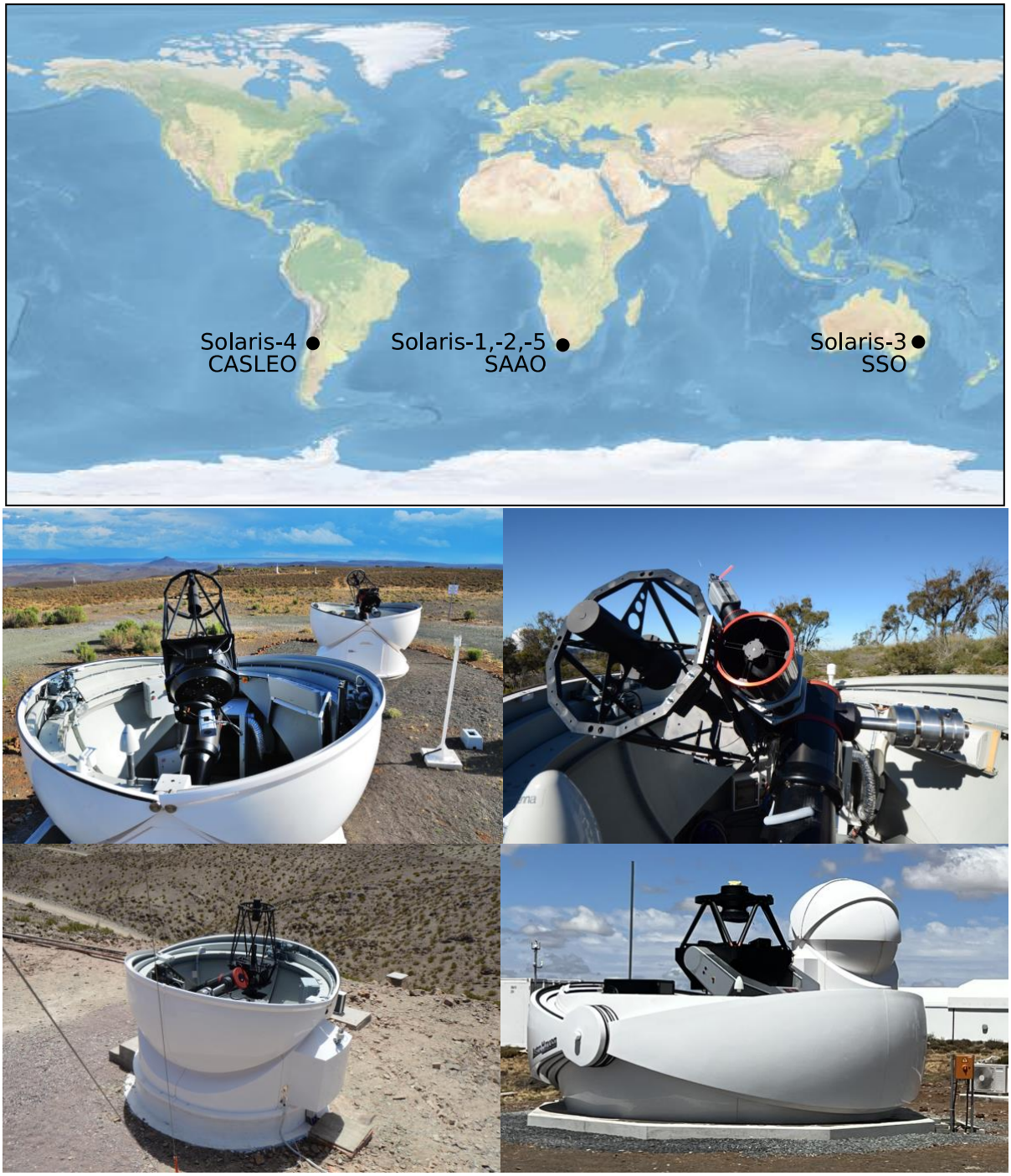
Prof. Maciej Konacki
Nicolaus Copernicus Astronomical Center, Polish Academy of Sciences
ul. Rabiańska 8, 87-100 Toruń, Poland
maciej@ncac.torun.pl



Solaris 1 and 2 (upper left, South African Astronomical Observatory, SAAO, Republic of South Africa), Solaris 3 (upper right, Siding Spring Observatory, SSO, Australia), Solaris 4 (lower left, Complejo Astronómico El Leoncito, CASLEO, Argentina) and Solaris 5 (lower right, SAAO)

	Solaris 1	Solaris 2	Solaris 3	Solaris 4	Solaris 5
Optical Tube Assembly	ASA 0.5-m Ritchey-Chrétien, f/15	ASA 0.5-m Ritchey-Chrétien, f/15	(1) ASA 0.5-m Cassegrain, f/9 (2) ASA 0.2-m f/2.8 astrograph	ASA 0.5-m Ritchey-Chrétien, f/15	ASA 1-m prime focus, f/1.3
Mount	ASA DDM160 equatorial mount, direct drive	ASA DDM160 equatorial mount, direct drive	ASA DDM160 equatorial mount, direct drive	ASA DDM160 equatorial mount, direct drive	ASA equatorial fork mount, direct drive
Camera, detector	Andor iKonL CCD, e2V CCD42-40 BI, 2048 x 2048, 13.5 um pixel	FLI Kepler KL4040 FI sCMOS, GPixel GSense4040 FI, 4096 x 4096, 9 um pixel	(1) Andor iKonL CCD, e2V CCD42-40 BI, 2048 x 2048, 13.5 um pixel (2) Andor Zyla 5.5 sCMOS, 2560 x 2160, 6.5 um pixel	FLI Kepler KL4040 FI sCMOS, GPixel GSense4040 FI, 4096 x 4096, 9 um pixel	FLI Kepler KL6060 FI sCMOS, GPixel GSense6060 FI, 6144 x 6144, 10 um pixel
Time source	Meinberg GPS180PEX card	Meinberg GPS180PEX card	Meinberg GPS180PEX card	Meinberg GPS180PEX card	Meinberg GPS180PEX card
Filters	Johnson-Cousins UBVRI, Sloan u′g′r′i′z′	Johnson-Cousins UBVRI, Sloan u′g′r′i′z′	(1) Johnson-Cousins UBVRI, Sloan u′g′r′i′z′ (2) none	Johnson-Cousins UBVRI, Sloan u′g′r′i′z′	none
Dome	3.5-m BP clamshell	3.5-m BP clamshell	3.5-m BP clamshell	3.5-m BP clamshell	18 ft. Astrohaven clamshell
Field of view	0.21 x 0.21 deg	0.28 x 0.28 deg	(1) 0.35 x 0.35 deg, (2) 1.70 x 1.44 deg	0.28 x 0.28 deg	2.71 x 2.71 deg
Pixel scale	0.37 arcsec	0.25 arcsec	(1) 0.62 arcsec, (2) 2.39 arcsec	0.37 arcsec	1.59 arcsec
Location	South African Astronomical Observatory (SAAO), Republic of South Africa	South African Astronomical Observatory (SAAO), Republic of South Africa	Siding Spring Observatory (SSO), Australia	Complejo Astronómico El Leoncito (CASLEO), Argentina	South African Astronomical Observatory (SAAO), Republic of South Africa
Notes	equipped with a COTS echelle spectrograph BACHES from BP, see [2]				deployed, fully operational H2 2024

ASA = Astro Systeme Austria , BP = Baader Planetarium, FLI = Finger Lakes Instrumentation

References:

[1] A Kozłowski, S. K.; Sybilski, P. W.; Konacki, M.; Pawłaszek, R. K.; Ratajczak, M.; Hełminiak, K. G.; Litwicki, M., “Project Solaris, a Global Network of Autonomous Observatories: Design, Commissioning, and First Science Results”, Publications of the

Astronomical Society of the Pacific, vol. 129, no. 980, p. 105001, 2017. doi:10.1088/1538-3873/aa83aa

[2] Kozłowski, S. K., Konacki, M., Sybilski, P., Ratajczak, M., Pawłaszek, R. K., and Hełminiak, K. G., "Spectroscopic Survey of Eclipsing Binaries with a Low-cost Echelle Spectrograph: Scientific Commissioning", Publications of the Astronomical Society of the Pacific, vol. 128, no. 965, p. 074201, 2016. doi:10.1088/1538-3873/128/965/074201

Notes: The original network (Solaris 1-4) underwent moderate hardware changes since the above publications. Solaris 2 and 4 were equipped with sCMOS FLI Kepler 4040 cameras (replaced Andor iKonL CCD), Solaris 3 was equipped with a 0.2-m astrograph with a sCMOS Andora Zyla 5.5 camera. A paper covering the new telescope Solaris-5 is expected in 2025.

The network was originally designed to search for circumbinary planets and characterize eclipsing binaries.The network's name "Solaris" is a tribute to Stanisław Lem's 1961 novel of the same name. In his book, Lem describes a fictional planet that orbits a binary system.

The original network of four telescopes (Solaris 1-4) was made possible thanks to the hard and dedicated work of my former graduate students Stanisław Kozłowski, Piotr Sybilski, Rafał Pawłaszek, Milena Ratajczak, Krzysztof Hełminiak and Michał Litwicki.