

Status of the Radiometric Calibration Network: RadCalNet

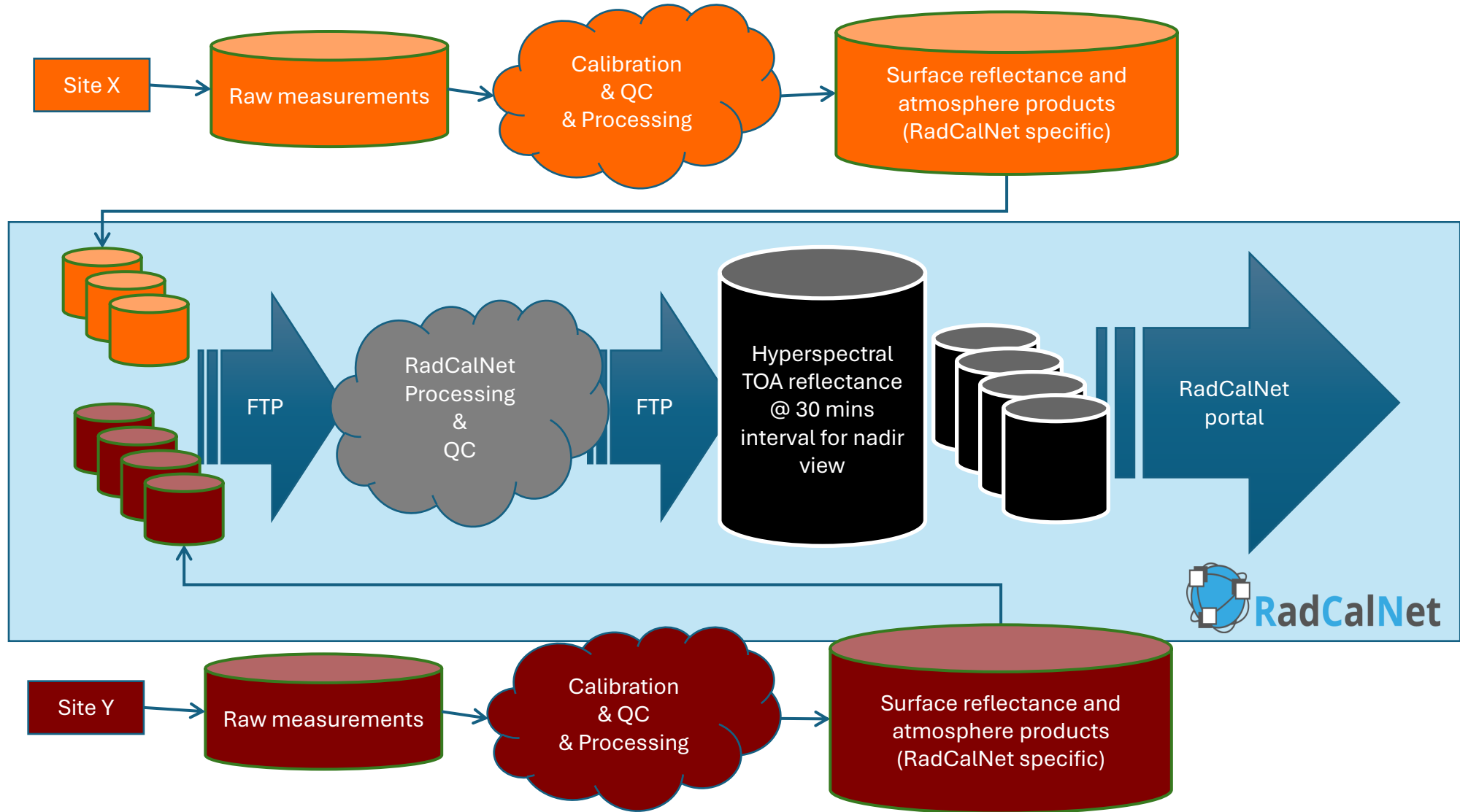
M. Bouvet on behalf of the RadCalNet WG (CEOS/WGCV/IVOS)



AC-VC
June 2026

What is RadCalNet?

AC-VC– June 2026

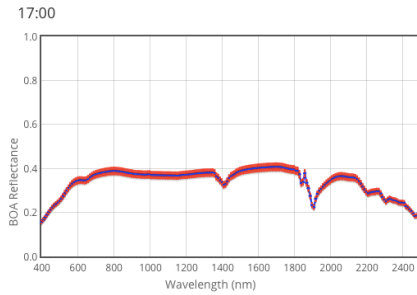




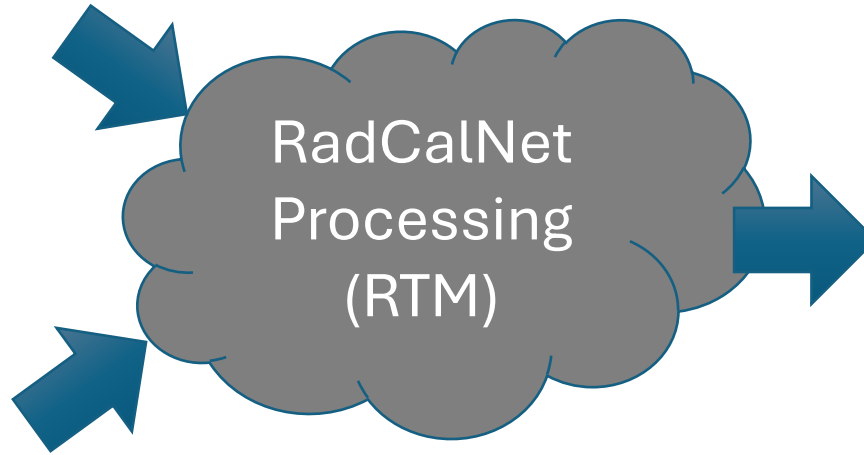
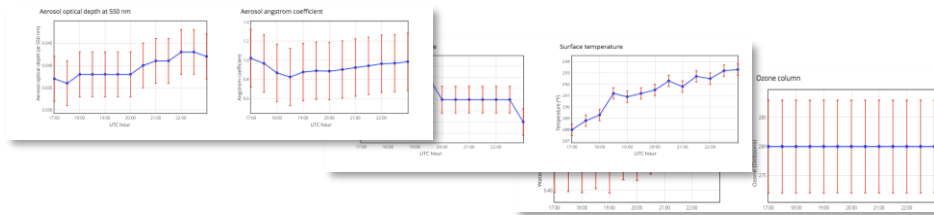
Today 5 sites (+ more in preparation)



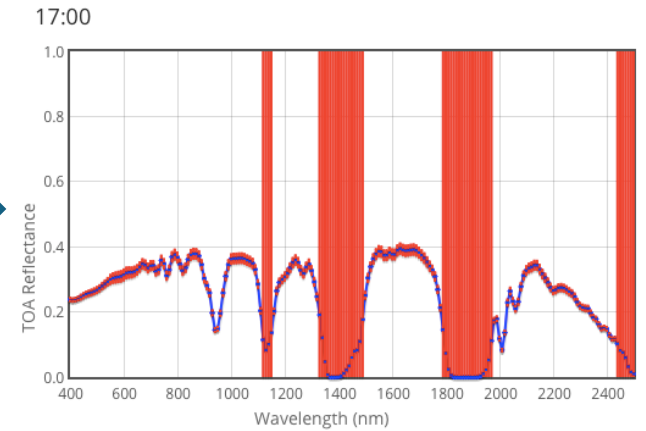
Surface reflectance



Atmospheric measurements



TOA reflectance

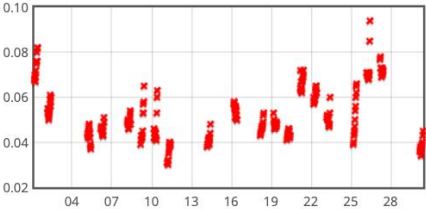




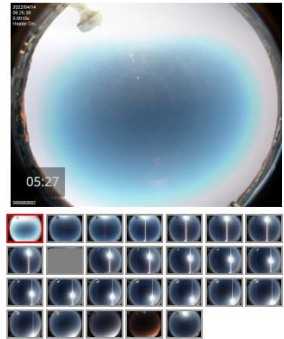
esa

April 2022						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28	29	30	31	01	02
03	04	05	06	07	08	09
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
01	02	03	04	05	06	07

Monthly Aerosol Optical Depth at 550nm (Month 04)



Webcam views for the day

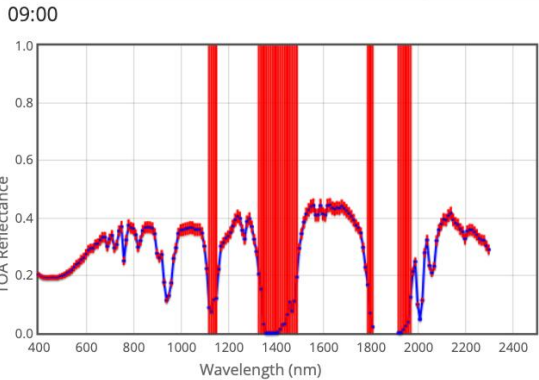


- All TOA simulations available for this day (every 30 mins between 9:00 and 15:00 Local Standard Time)
- TOA simulations only partially available for this day

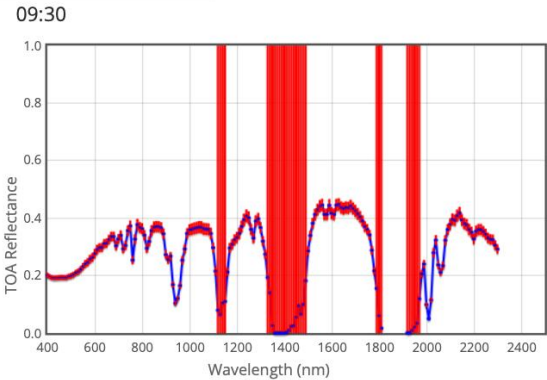
[Download daily data for all instruments](#)

Sensor : 01 Input version : 07 Output version : 04

Atmospheric parameters



BOA Reflectance



TOA Reflectance



[Contact Admin](#)





categories tags Categories Latest Unread (5) Top

+ New Topic

Category	Topics	Latest
Announcements Announcements of general interest to the entire RadCalNet community will be posted under this section.	32	 Date 1 Data 4d
FAQ Description of the RadCalNet Forum and the various categories	1	 Solar Spectra Irradiance Data for Converting TOA Reflectance to Radiance? 1 TOA for all sites 11d
Documentation Topic related to RadCalNet documentation	6	 RVUS 2024-279 .input and .output files re-uploaded to the RadCalNet portal 0 BOA and Atmosphere for RVUS Oct 31
Data Discussion on RadCalNet data and Sites BOA and Atmosphere for BTCN BOA and Atmosphere for RVUS BOA and Atmosphere for LCFR BOA and Atmosphere for GONA 1 unread TOA for all sites 1 unread	43 3 unread	 Announcing Cal/ValToolBox: Open-Source Tools for Satellite Calibration and Validation 1 Oct 22
Site Review This category is created for discussion between the new site owner and the RadCalNet Working Group based on the review of the requested documentation and data . Baotou Sandy Site Review 1 unread	4 1 unread	 Use of the Simera Hyperspace100 2 Sep 11
Uncategorized Topics that don't need a category, or don't fit into any other existing category.	8 1 unread	 GONA site is back in action 0 Data Jul 25  A new partial reprocessing of data for BSCN and BTCN 0 Announcements Jul 23  BTCN/BSCN and LCFR missing data 5 Data Jul 18  Change in RadCalNet archive in netcdf format 0 Announcements Jul 9  LCFR missing data 2 BOA and Atmosphere for LCFR May 29  Automatic notifications for new data 1 Data Apr 8  Ongoing network issue at RVUS. It

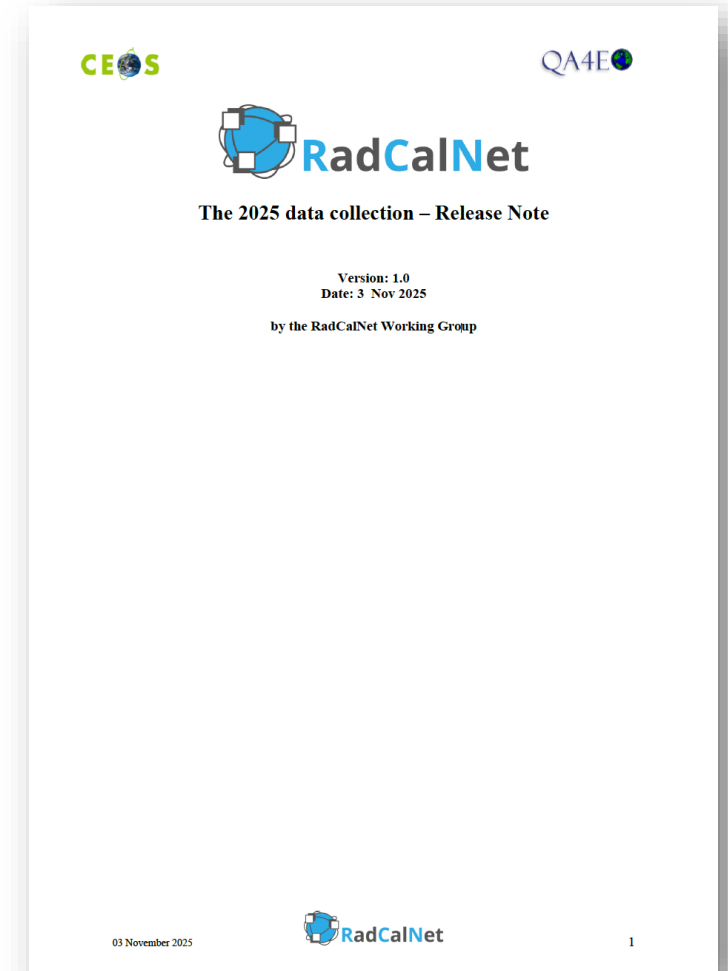
- The full archive provide more than 7000+ days worth of data from the 5 sites and spanning 13 years. Both ASCII and NetCDF format available
- Data availability (requirement: > 90 days / year) generally constrained by weather conditions for non desertic sites.

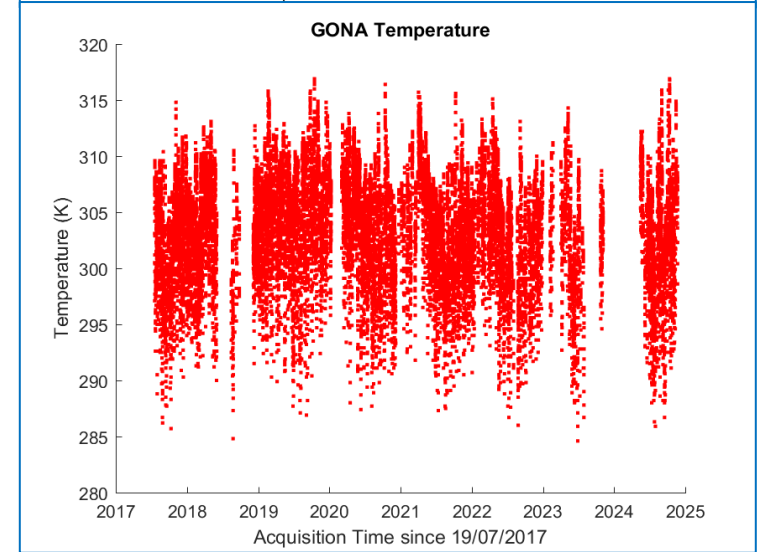
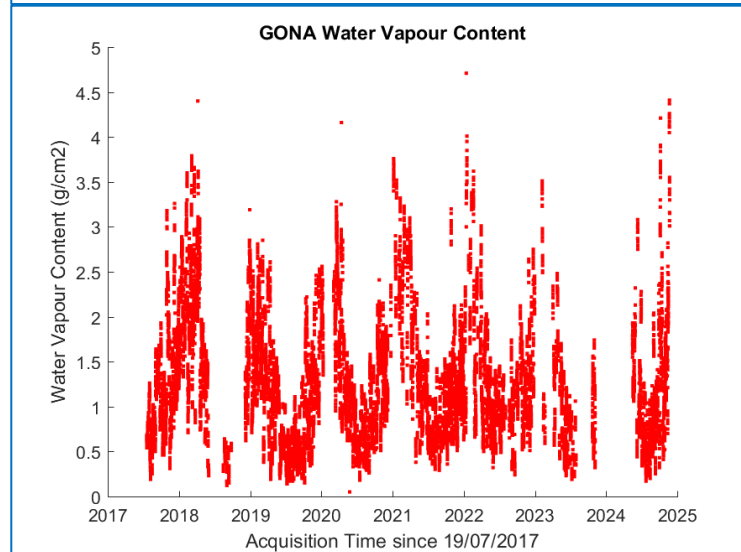
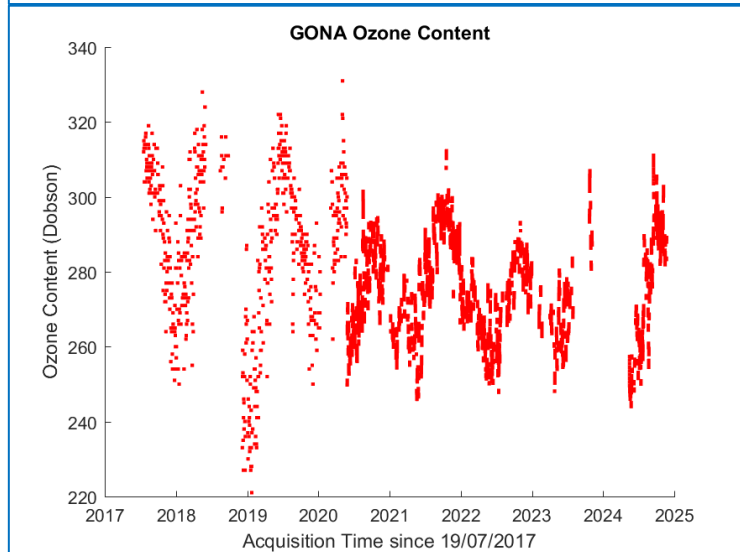
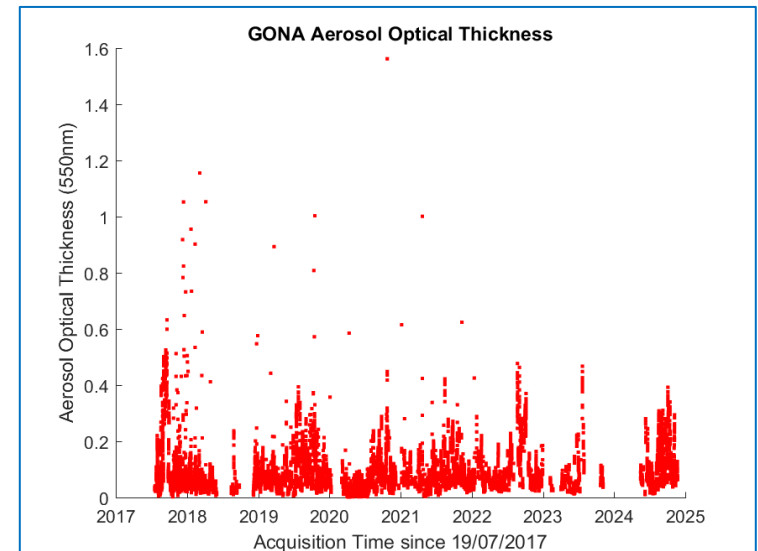
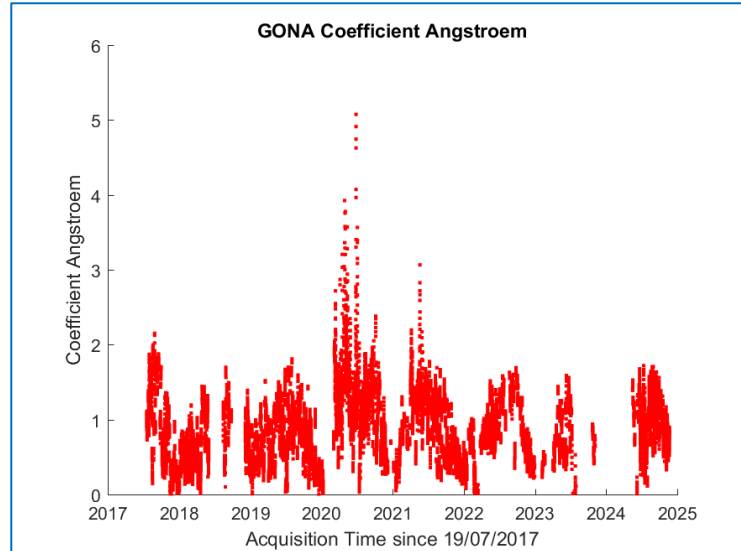
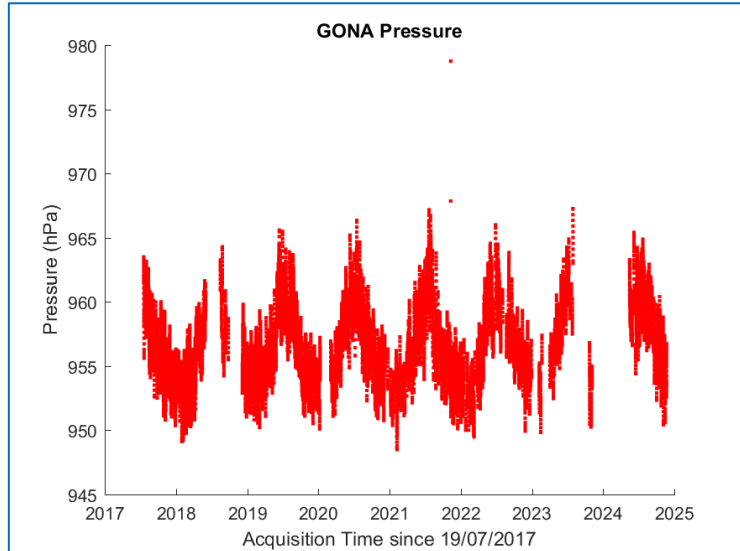
31/03/2026	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
RVUS	194	228	217	217	261	228	249	252	274	274	213	268	283	49	3207
LCFR	0	0	100	125	128	99	128	115	102	98	87	90	57	3	1132
BTCN	0	0	0	52	76	108	102	30	85	63	85	103	93	0	797
GONA	0	0	0	0	129	157	259	217	223	191	67	135	79	26	1483
BSCN	0	0	0	0	15	41	73	40	80	68	73	105	102	0	597
	194	228	317	394	609	633	811	654	764	694	525	701	614	78	7216

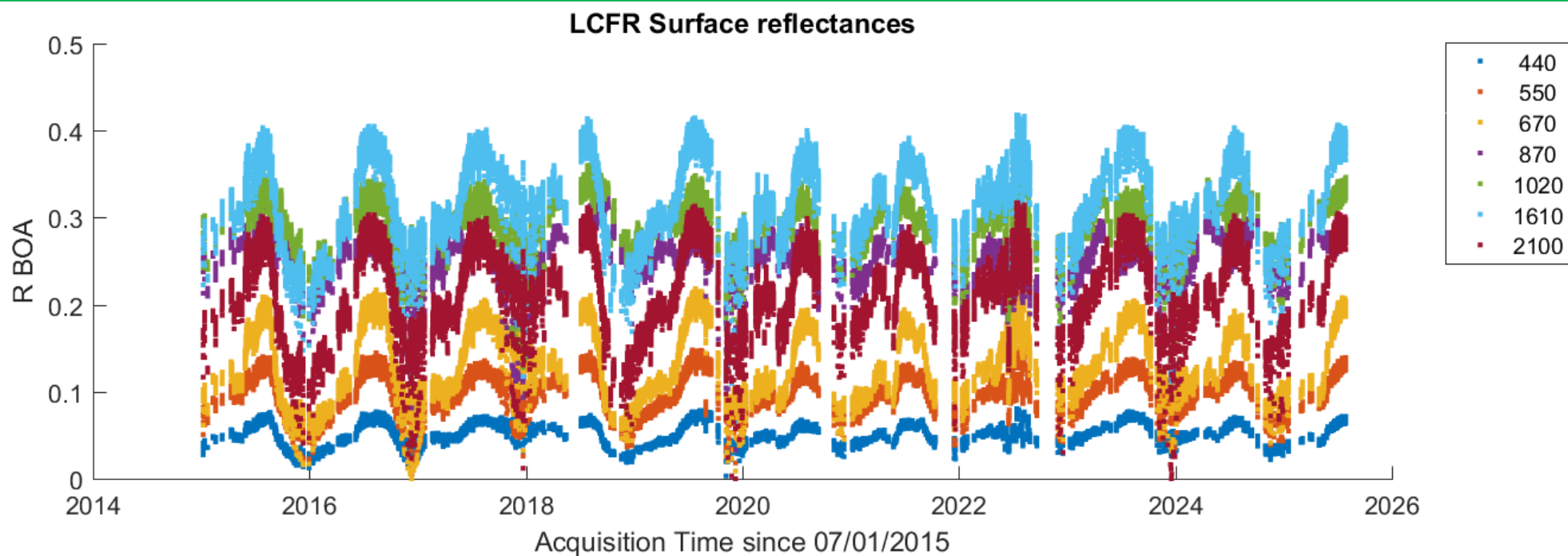
Number of days/year with RadCalNet data availability at each site

- Data latency (requirement: <2 weeks from acquisition) remains a challenge for several sites
- Limited instrument availability at Gobabeb in 2025
- Operation at Batou should resume in Q2 2026 (like every year after winter).

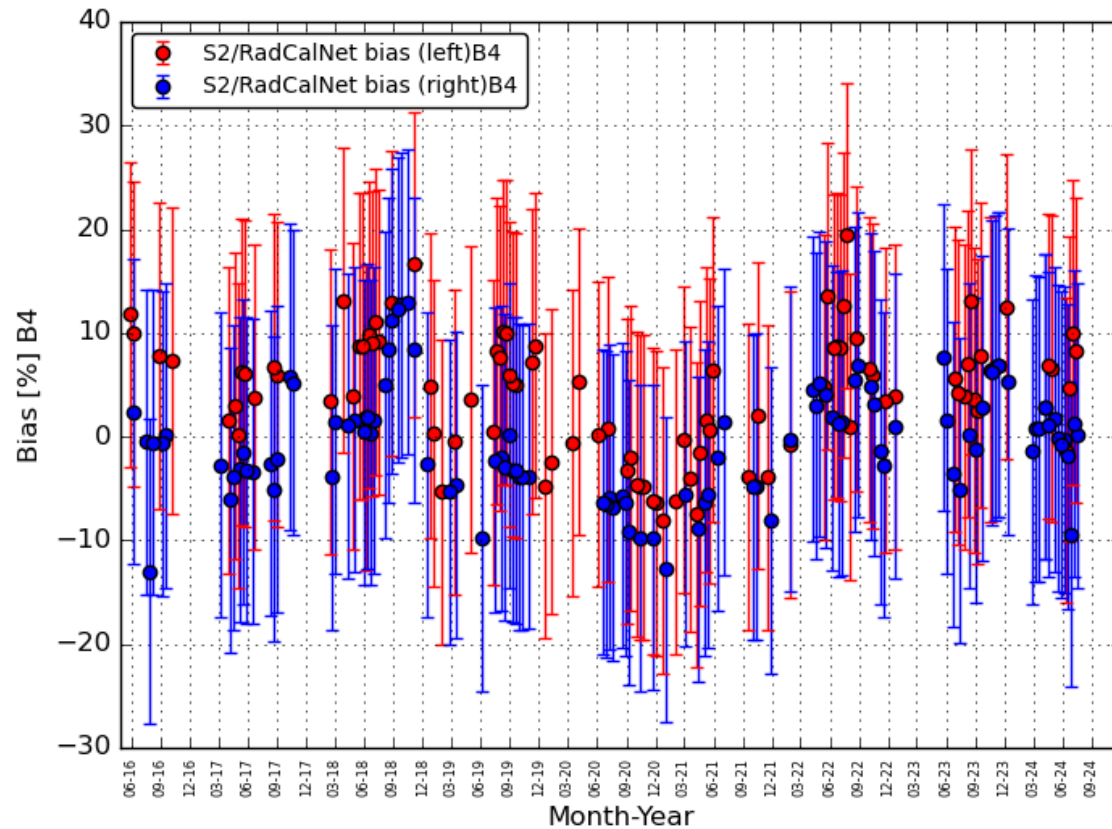
- RadCalNet archive updated on 3rd of Nov 2025
- Full reprocessing of Railroad Valley Playa data:
 - New NO₂ and CH₄ input data from Sentinel-5P TROPOMI
 - Usage of AERONET Level 1.5 aerosol optical depth (rather than Level 2 data)
 - The TSIS-1 v2 HSRS extraterrestrial solar spectrum rather than the Thuillier spectrum.
- Reprocessing/modification of only few isolated dates for La Crau, Gobabeb and Baotou.





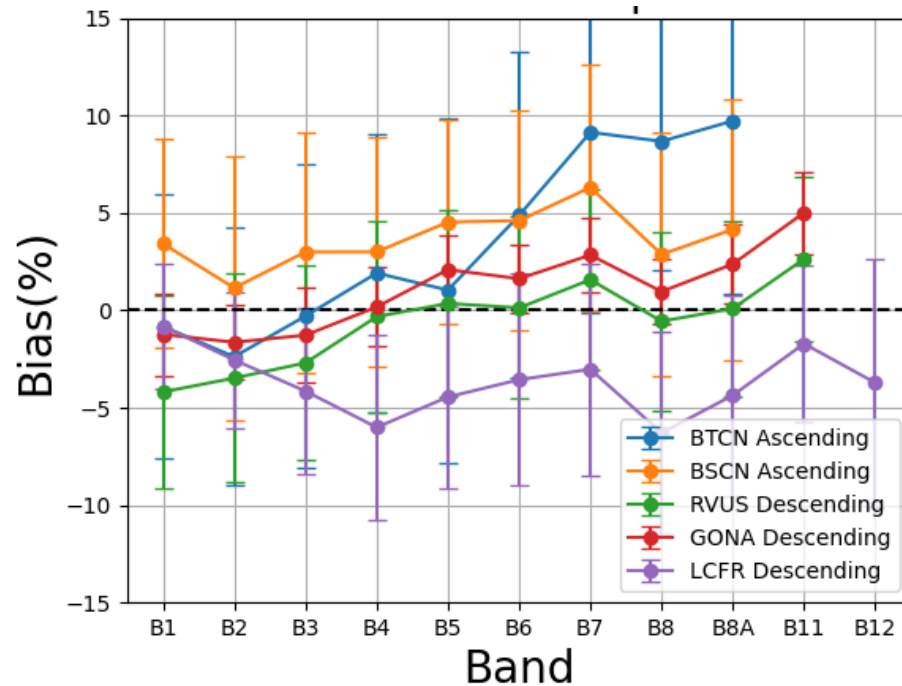


Std(left/right) 5.76/5.30
Mean[%]: 1.69 Mean/Median(left)[%]: 4.25/4.94 Mean/Median(right)[%]: -0.57/-0.54

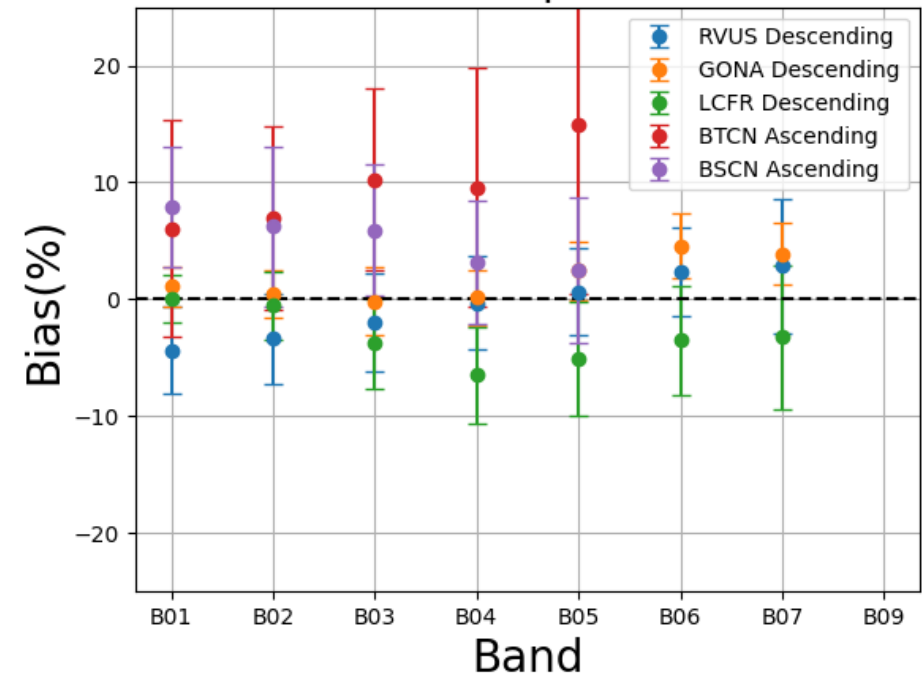


- RadCalNet TOA reflectance available every 30 mins
- Sampled at 10 nm spectral sampling interval
- S2A geometry is not exactly nadir
- BRDF effects not accounted for

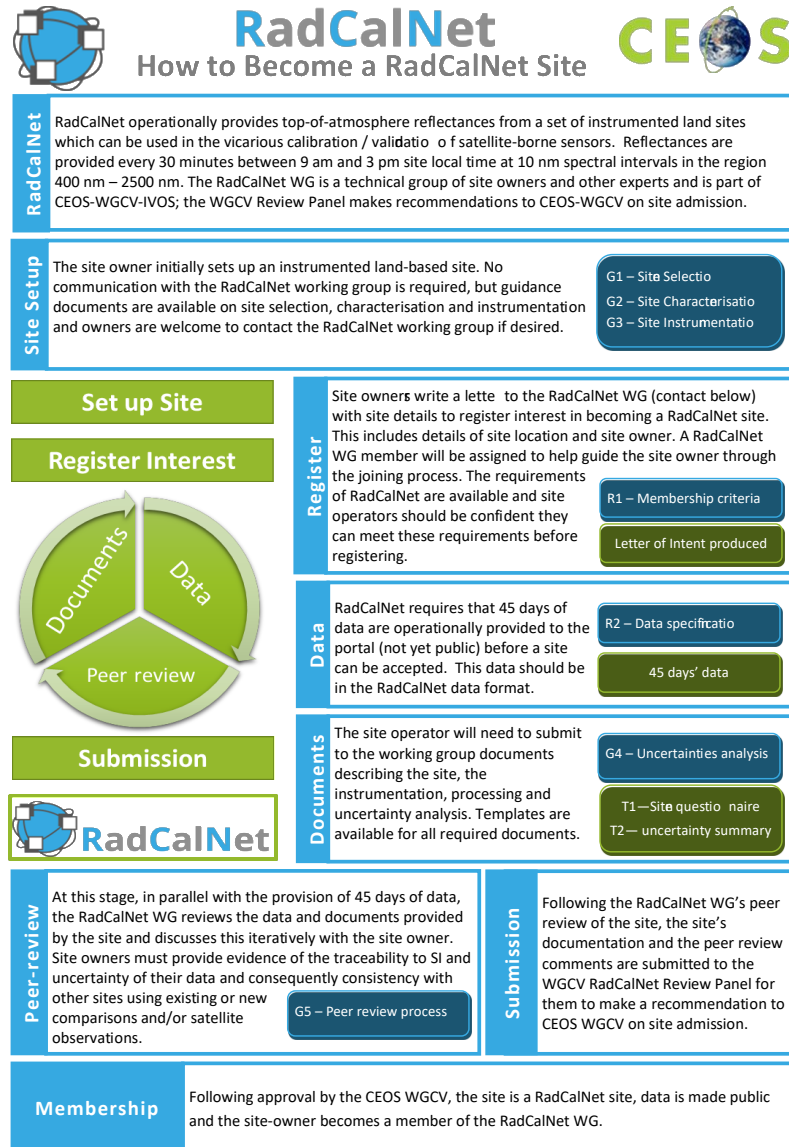
S2 vs RadCalNet TOA reflectance



L8 vs RadCalNet TOA reflectance



NB: S2/L8 spatial resolution NOT compatible with Baotou artificial target size (=BTCN).



- Candidate site owners provide 45+ days worth of data, a site description and document their uncertainty budget.
- RadCalNet WG members review and a dedicated panel provides final recommendation for acceptance
- Final assessment and acceptance by CEOS/WGCV

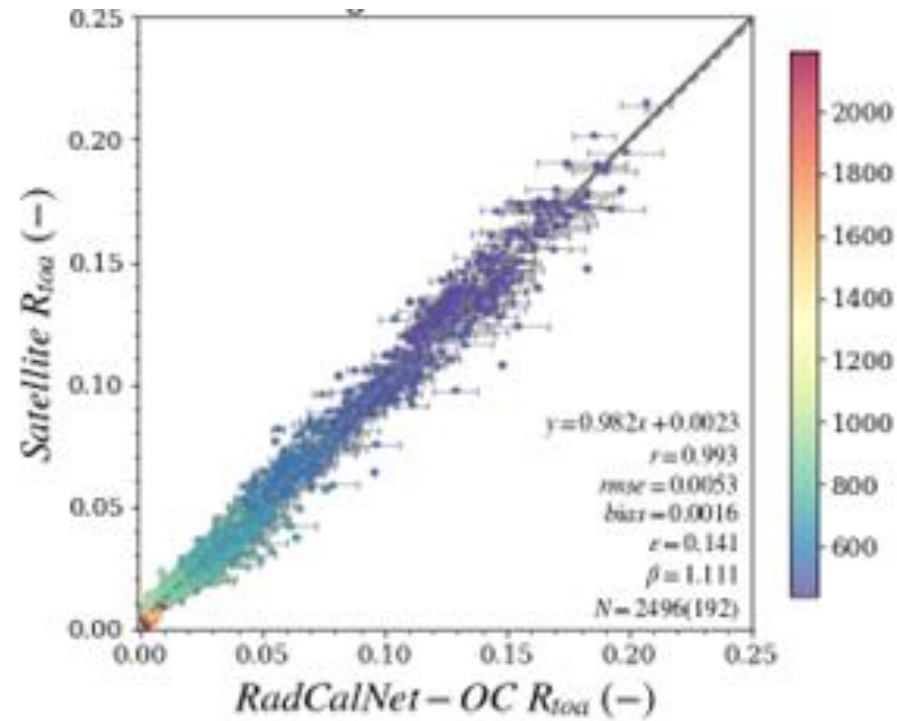
- 3 new sites have submitted their application to RadCalNet
- Already prepared a 45+ days of data and site description and uncertainty statements
- All gone through two rounds of review and comparisons to S-2 / Landsat data

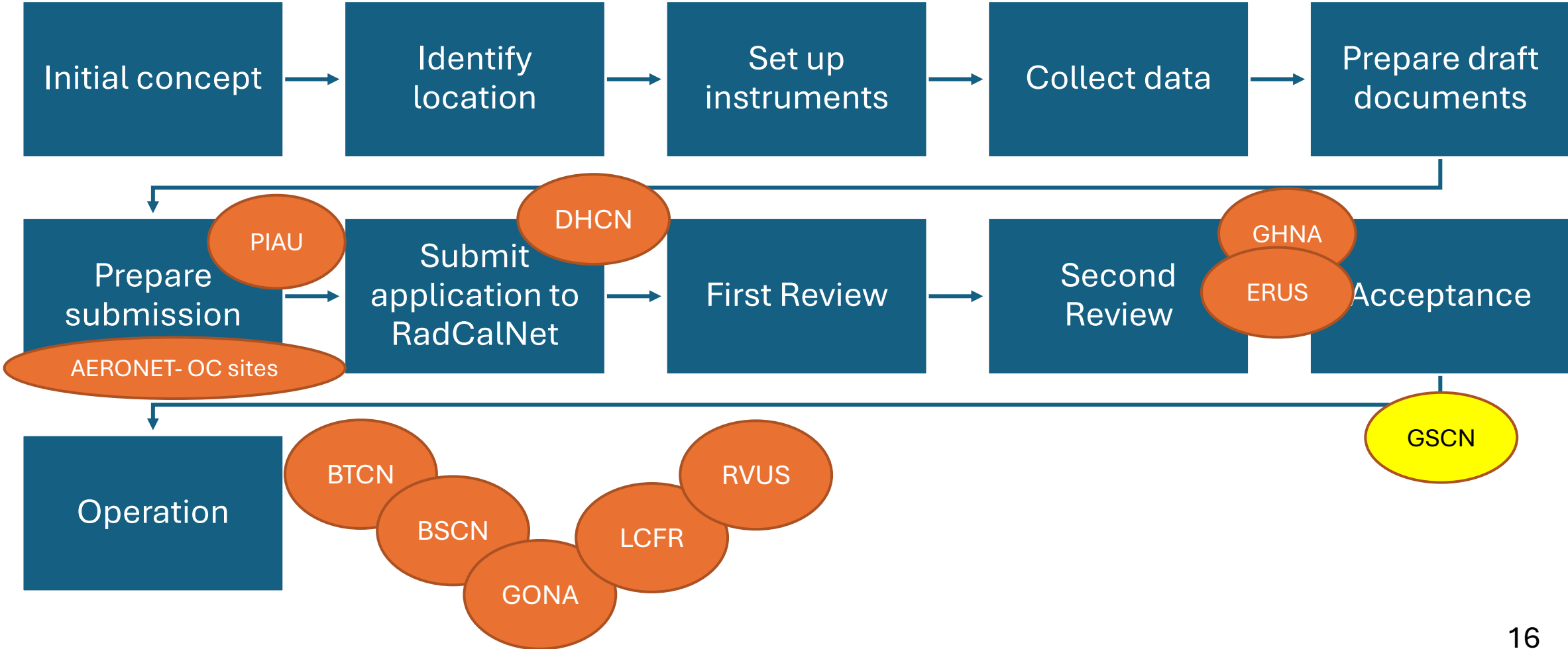


From left to right: USGS EROS center (US), HYPERNETS Gobabeb (Namibia) and Golmud (China)

- Development of a processing chain starting from AERONET-OC multispectral water leaving radiance, generating hyperpseudospectral water leaving remote sensing reflectance (R_{sr}) and then TOA reflectance at RadCalNet geometry and temporal sampling.
- Expected to be submitted for acceptance for Venice Tower (Italy) and Galata platform (Roumenia)

Match up comparison Sentinel-2 from 2017 to 2024 at Venice Tower





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- 8 years of RadCalNet operation
- 5 sites currently providing data and 3 new sites about to join the network
- New 2025 data collection available
- An archive spanning 13 years and cumulating 7000+ days of data for EO sensor radiometric assessment
- Continuous efforts to maintain data quality and improve timeliness of data
- Growing user base

Thank you

