CEOS SAR Calibration & Validation Workshop 2026

Participant Information and Final Programme

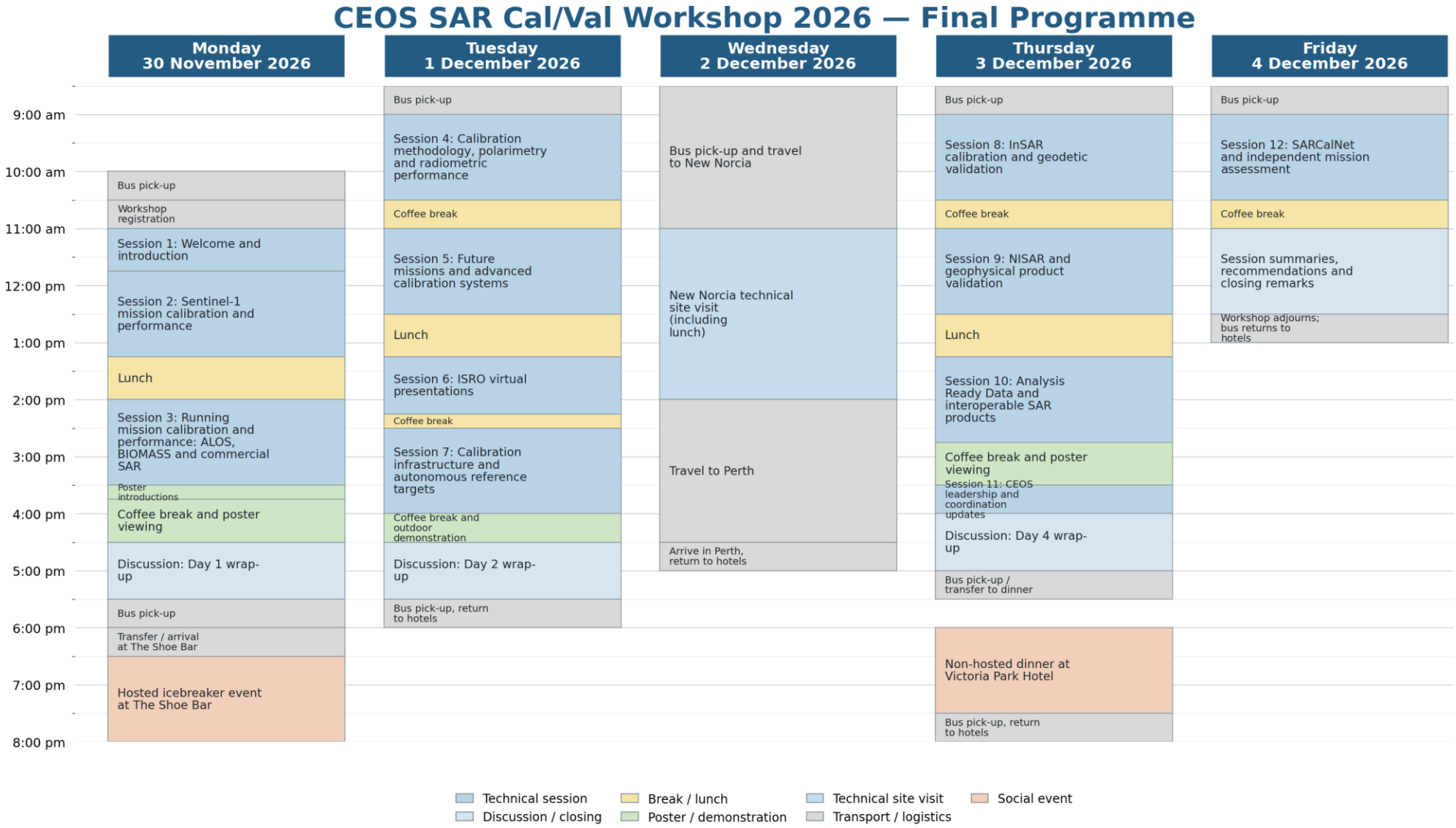
30 November – 4 December 2026 | Perth, Western Australia





With sponsorship gratefully received from:

Week at a glance



Detailed Programme – Monday 30 November 2026

Time	Presenter	Presentation / activity
10:00 am		Bus pick-up
10:30 am		Registration
Session 1: Welcome and introduction (45 mins)		
11:00 am	Dirk Geudtner	Workshop introduction
11:05 am	Matt Garthwaite	Workshop logistics
11:15 am	Mark Cheung	Introduction to CSIRO
11:30 am	Medhavy Thankappan	Introduction to Geoscience Australia
Session 2: Sentinel-1 mission calibration and performance (90 mins), Chairs: Medhavy Thankappan and Stephane Cote		
11:45 am	Dirk Geudtner	Results of Sentinel-1D In-Orbit SAR System Calibration
12:05 pm	Andrea Recchia	Overview of Sentinel-1 Cal/Val and product quality and summary of Sentinel-1D In-Orbit Commissioning phase
12:25 pm	Jakob Giez	Results from DLR's independent SAR system calibration of Sentinel-1D with comparison to Sentinel-1C
12:45 pm	Andrea Recchia	Improving Sentinel-1 Level-1 Radiometry: a Suite of Dedicated Tools
1:05 pm		Session discussion / buffer
1:15 pm		Lunch
Session 3: Running mission calibration and performance: ALOS, BIOMASS and commercial SAR (90 mins) Chairs: Bruce Chapman and Ake Rosenqvist		
2:00 pm	Takeshi Motooka	Current Status of ALOS-2 and ALOS-4 Cal/Val and Observations
2:20 pm	Clement Albinet	Overview of the BIOMASS mission Cal/Val and product quality after one year of operations
2:40 pm	Andrea Recchia	First-Year In-Orbit Calibration and Validation of Biomass P-Band L1 Products: Radiometric Profiles, NESZ and De-Noising Improvements
3:00 pm	Ron Muellerschoen	Capella Metrology and Calibration Status
3:20 pm		Session discussion / buffer
Poster introduction session (15 mins) Chair: Matt Garthwaite		
3:30 pm	Jere Vepsä	Automatic Azimuth Antenna Pattern Assessment Through Azimuth Ambiguous Energy Estimation
3:32 pm	Adriana Parra Ruiz	Evaluating Multi-Frequency SAR Sensitivity at the GEO-TREES Great Western Woodlands Site, Australia, to Support the Validation of Global Biomass Products
3:34 pm	Lingfeng Ye	Single-Station GNSS Calibration of InSAR: Validation across Selected Australian Regions

Detailed Programme – Monday 30 November 2026

3:36 pm	Xristi Gibson	Design of a Coastal Infrastructure Site in Fremantle for InSAR Geodesy and Sea-Level Monitoring
3:38 pm		Poster introduction transition / buffer
3:45 pm		Coffee break and poster viewing
4:30 pm		Discussion: Day 1 wrap-up
5:30 pm		Bus pick-up and transfer to The Shoe Bar
6:00 pm		Hosted icebreaker event at The Shoe Bar; no return bus to hotels

Detailed Programme – Tuesday 1 December 2026

Time	Presenter	Presentation / activity
8:30 am		Bus pick-up from the two city stops
Session 4: Calibration methodology, polarimetry and radiometric performance (90 mins) Chairs: Jens Reimann and Dirk Geudtner		
9:00 am	Haruya Hirano	Removal of Radiometric Calibration Errors Caused by Faraday Rotation in ALOS-2 PALSAR-2 Dual-polarization Data
9:20 am	Beatrice Mai	A statistics-based method for the characterization of Noise Equivalent Sigma Nought in co-polarization data
9:40 am	Zheng-Shu Zhou	The Practice of Polarimetric Radar Calibration
10:00 am	Jan Krecke	Automated Calibration of the ICEYE SAR Satellite Constellation
10:20 am		Session discussion / buffer
10:30 am		Coffee break
Session 5: Future missions and advanced calibration systems (90 mins) Chairs: Brian Hawkins and Takeshi Motooka		
11:00 am	Jens Reimann	Polarimetric Calibration using Four Canonical Signatures
11:20 am	Jens Reimann	ROSE-L's Concept for Antenna Model Verification
11:40 am	Beatrice Mai	A Compact Active Transponder for HARMONY Bistatic SAR Calibration and Verification
12:00 pm	Yong Wang	Corner Reflectors for Multi-source Spaceborne SAR Cal/Val at Chibi, Hubei, China
12:20 pm		Session discussion / buffer
12:30 pm		Lunch

Detailed Programme – Tuesday 1 December 2026

	Session 6: ISRO virtual presentations (60 mins) **Chairs: Matt Garthwaite and Stephane Cote**	
1:15 pm	Shweta Sharma	NISAR data (S-band) calibration – Commissioning phase
1:35 pm	K. Niharika	Radiometric Analysis of NISAR S-SAR Data over Amazon Homogenous Distributed Rain Forest
1:55 pm	P.V. Jayasri	Assessment of Opportunistic Point Targets in EOS-04 SAR Data as Complementary Targets for Periodic SAR Data Validation
2:15 pm		Coffee break
	Session 7: Calibration infrastructure and autonomous reference targets (90 mins) **Chairs: Jens Reimann and Joe Kennedy**	
2:30 pm	Chris Walls	Toward Standardized Point Targets for SAR Calibration: Geodetic-Grade Monumentation, Certified Geometry, RCS Validation, and cGNSS Monitoring
2:50 pm	Melissa Fedrigo	Top Hat Reflectors as Multi-Mission Ground Control Targets for SAR and Optical Remote Sensing in Remote Environments
3:10 pm	Medhavy Thankappan	Strengthening Synthetic Aperture Radar Calibration in Australia: A Decade of Ground-Based Infrastructure, Performance and International Collaboration
3:30 pm	Matt Garthwaite	Development and Demonstration of an Autonomous SAR Calibration Target
3:50 pm		Session discussion / buffer
4:00 pm		Coffee break and outdoor demonstration
4:30 pm		Discussion: Day 2 wrap-up
5:30 pm		Bus pick-up and return to hotels

Detailed Programme – Wednesday 2 December 2026

Time	Presenter	Presentation / activity
8:30 am		Bus pick-up from the two city stops
		Drive to New Norcia, with comfort stop at Bindoon
11:00 am		New Norcia Technical Site visit (3 hours)
2:00 pm		Bus departs New Norcia
4:30 pm		Approximate return time to Perth and hotels

Detailed Programme – Thursday 3 December 2026

Time	Presenter	Presentation / activity
8:30 am		Bus pick-up from the two city stops
Session 8: InSAR calibration and geodetic validation (90 mins) Chairs: Matt Garthwaite and Chris Walls		
9:00 am	Dirk Geudtner	Results of Sentinel-1D SAR Interferometry Verification
9:20 am	Charles Wang	Integrated Sentinel-1 InSAR and IoT-GNSS sensors for monitoring ground movement in reclaimed coastal infrastructure: A case study at the Port of Brisbane
9:40 am	Yutaro Shigemitsu	Impact of Blind-Area Position on ALOS-4 InSAR Coherence and Long-Term ALOS-2/ALOS-4 Time-Series Analysis
10:00 am	Edward Sage	SqueeSAR validation and calibration using continuously operating global positioning system (CGPS) base stations
10:20 am		Session discussion / buffer
10:30 am		Coffee break
Session 9: NISAR and geophysical product validation (90 mins) Chairs: Andrea Recchia and Clement Albinet		
11:00 am	Brian Hawkins	NISAR L-Band First Year Image Quality Assessment
11:20 am	Bruce Chapman	Interim Validation of NISAR L-band Science Measurement Requirements
11:40 am	Joe Kennedy	Validation Results for the NISAR Level-3 Permafrost Requirement
12:00 pm	Ha Nguyen	Assessing Paired Crop-Reference Observations as a Validation Framework for Multi-Frequency SAR Soil Moisture Applications
12:20 pm		Session discussion / buffer
12:30 pm		Lunch
Session 10: Analysis Ready Data and interoperable SAR products (90 mins) Chairs: Clement Albinet and Brian Hawkins		
1:15 pm	Beatrice Mai	Sentinel-1 Analysis Ready Data: a method for assessment of the Coregistered SLC and Normalized Radar Backscatter products
1:35 pm	Norman Mueller	Digital Earth Antarctica – Overview and Update on Sentinel-1 ARD for Australia and Antarctica
1:55 pm	Krzysztof Orzel	SYNSPECTIVE ARD: A CEOS-ARD NRB Compliant Product from a Commercial X-Band SAR Constellation and its Use for Flood Monitoring
2:15 pm	Joe Kennedy	ASF's NISAR Data Ecosystem: Cloud Services, Custom Processing, and User Tools
2:35 pm		Session discussion / buffer
2:45 pm		Coffee break and poster viewing
Session 11: CEOS leadership and coordination updates (30 mins) Chairs: Dirk Geudtner and Medhavy Thankappan		
3:30 pm	Ake Rosenqvist	CEOS Analysis Ready Data for SAR – Status update 2026

Detailed Programme – Thursday 3 December 2026

3:45 pm	Ake Rosenqvist	The CEOS Synthetic Aperture Radar Virtual Constellation (SAR-VC)
4:00 pm		Discussion: Day 4 wrap-up
5:00 pm		Bus pick-up and transfer to Victoria Park Hotel
6:00 pm		Non-hosted dinner at Victoria Park Hotel
7:30 pm		Bus pick-up and return to the two city stops

Detailed Programme – Friday 4 December 2026

Time	Presenter	Presentation / activity
8:30 am		Bus pick-up from the two city stops
Session 12: SARCalNet and independent mission assessment (90 mins) Chairs: Bruce Chapman and Ake Rosenqvist		
9:00 am	Matt Paget	Towards Continuous Monitoring of SARCalNet Calibration Targets Using Sentinel-1 and Cloud-Native Processing
9:20 am	Andrea Recchia	Assessment of third-party SAR missions in the framework of the new Earthnet Data Assessment Project (EDAP+): methods and tools
9:40 am		SARCalNet discussion and actions
10:30 am		Coffee break
11:00 am	Session Chairs and Subgroup chairs	Session summaries, recommendations and closing remarks
12:30 pm		Workshop adjourns; bus returns to hotels

Practical information for the week

Workshop venue

CSIRO Australian Resources Research Centre (ARRC), 26 Dick Perry Avenue, Kensington, Perth, WA 6151.
https://maps.app.goo.gl/7zR5HHCFBCLSb7uz7

The venue is approximately 15 minutes' drive from Perth City and includes a lecture theatre, breakout rooms, poster space and on-site cafe.

Participants will need to **sign in and out of the venue everyday**, either using kiosks in the reception area or at the following link: Envoy.

Guest Wifi credentials for use at ARRC are automatically provided following sign in.

Complimentary Coach transport

Complimentary daily coach transport will run between the Langley Park area of Perth City and CSIRO ARRC. The two pick-up points, indicated by green dots, are:

1) Residence on Langley Park, Adelaide Terrace **2) Pan Pacific Perth, Hill Street.**





Participants who selected coach transport should arrive at the pick-up points **5-10 minutes before** the following departure times:

Day	City departure	Return departure
Monday	10:00 am	5:30 pm, ARRC to The Shoe Bar
Tuesday	8:30 am	5:30 pm, ARRC to city hotel stops
Wednesday	8:30 am	2:00 pm from New Norcia; approximately 4:30 pm city hotels arrival
Thursday	8:30 am	5:00 pm, ARRC to Victoria Park Hotel; 7:30 pm hotel to city hotel stops
Friday	8:30 am	12:30 pm, ARRC to city hotel stops

The coaches will not wait for latecomers. If you miss the coach then please see alternative transport details below.

Alternative transport

Bus route 960 connects Perth City with Curtin University via Kensington.

Free CAT buses operate within Perth City.

Taxis and rideshare services (e.g. Uber) are also available.

Accommodation area

Participants are encouraged to stay near Langley Park, which is close to central Perth city with abundant shops and restaurant facilities.

Suggested hotels include Residence on Langley Park, Pan Pacific Perth, Crowne Plaza Perth, Ibis Styles East Perth, Novotel Perth Langley, Comfort Inn & Suites Goodearth Perth, and Quality Hotel Ambassador Perth.

Catering

Catering will be provided at CSIRO ARRC during the workshop on Monday, Tuesday and Thursday. Morning tea will be provided on Friday, but no lunch will be provided on Friday.

Packed lunches will be provided to confirmed participants of the New Norcia visit. Participants are advised to graze on their packed lunch throughout the day.

Please notify the organisers promptly of any change affecting a pre-advised dietary requirement.

The on-site café at ARRC is available for purchase of additional food and beverage items (at own expense)

New Norcia technical visit

The optional technical visit includes ESA's southern hemisphere deep-space tracking facility and the Biomass P-band transponder systems. Capacity is limited to 50 people.

ALL PARTICIPANTS MUST BRING VALID GOVERNMENT ISSUED ID (passport or driver licence). This will be sighted by the on-site security officer. Those without acceptable ID will not be allowed on site.

The visit is a full-day commitment with approximately two hours' coach travel each way. Bring sun protection (hat, sunscreen), insect repellent, water and **covered footwear (no sandals, high heels etc)**.

If you received the separate waitlist email, you are currently waitlisted. All other participants who selected New Norcia during registration have a place.

Please inform the workshop organisers if you no longer intend to join the New Norcia visit, so that your place can be offered to someone on the waitlist.

Perth weather

Early December is the start of summer. Expect warm to hot, mostly sunny and dry conditions, commonly in the mid-to-high 20s °C and occasionally above 30 °C. Bring a hat, sunscreen and a refillable water bottle, especially for New Norcia.

See: https://www.bom.gov.au/location/australia/western-australia/lower-west/bwa_pt053-perth

Presentations

Oral presentations: 15 minutes plus 5 minutes for questions.

Posters: A0 portrait, **plus an oral introduction consisting of one slide and a maximum of two-minutes**.

Please upload slides in PPTX or PDF format by **6:00 pm AWST on the day before your presentation** at Google Drive: https://drive.google.com/drive/folders/1E4XhfpEXsIb3IPOwNELTSeHWaN6yG9zV?usp=sharing

Presenters should also bring a copy on USB drive as a backup.

Use of the CEOS PowerPoint template is optional. The template was previously emailed and can be downloaded from https://docs.google.com/presentation/d/1dr9J9R9y-vkM0z54C7ocqZKTOZeqrMTU/edit?usp=sharing&ouid=102426477584304558908&rtpof=true&sd=true

Posters can be uploaded and printed for click and collect locally at Officeworks on Hay Street in the Perth City Centre: https://www.officeworks.com.au/shop/officeworks/storepage/W615/WA/Hay-St-Perth-Officeworks

Programme etiquette

Presenters in each session should report to the session Chairs before the start of each session, keep strictly to presentation times, and advise the organising committee immediately if the nominated presenter changes or attendance plans change.

Social Events

Two social events are organized as part of the workshop:

Icebreaker event, sponsored by Kurloo (https://www.kurloogeomonitoring.com/):
Monday 30 November, 6:00PM – 8:00PM
The Shoe Bar and Café, Yagan Square, 376–420 Wellington Street, Perth
Coach transport will be provided from ARRC to Shoe Bar. No return coach will be provided from the Shoe Bar (30 minutes' walk to hotels at Langley Park)

Non-hosted dinner
Thursday 3 December, 6:00PM – 7:30PM
Victoria Park Hotel, 610 Albany Highway, Victoria Park WA 6100
Food and drink will be at your own expense
Coach transport will be provided from ARRC to the venue, and then from the venue to Langley Park

Workshop contact

CEOS SAR Cal/Val Workshop Organising Committee email: ceos-sar-2026@csiro.au

Workshop Convenors: Matt Garthwaite (CSIRO, +61 492 166 671) and Medhavy Thankappan (GA, +61 448 055 627)

Useful links

Workshop website: https://events.csiro.au/Events/CEOS-SAR-2026
ARRC Venue location: https://maps.app.goo.gl/7zR5HHCFBCLSb7uz7
Australian entry requirements: https://immi.homeaffairs.gov.au/entering-and-leaving-australia/entering-australia
Daily weather: https://www.bom.gov.au/location/australia/western-australia/lower-west/bwa_pt053-perth
ESA New Norcia: https://www.esa.int/articles/about-us/directorates/operations/esa-ground-stations/new-norcia-dsa-1