CEOS WGCV SAR Subgroup

23rd SAR Calibration/Validation Workshop
Tokyo Denki University, Japan
Sep 07 - 09, 2016

M. Zink (Chair) / Bruce Chapman (Vice-Chair)

CEOS WGCV SAR Subgroup
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year	WS #	organized by	location
2016	23	Tokyo Denki University / JAXA	Tokyo / Japan
2015	22	ESA	Noordwijk / The Netherlands
2014	21	DLR	Berlin / Germany (together with EUSAR)
2013	20	CSA	St. Hubert / Canada (together with ASAR WS)
2011	19	ASF / University of Fairbanks	Fairbanks / Alaska, US
2010	18	RSL, University of Zurich	Zurich / Switzerland
2009	17	JPL	Pasadena / California, US
2008	16	DLR	Oberpfaffenhofen / Germany
2007	15	CSA	Vancouver / Canada
2006	14	Edinburgh Earth Observatory	Edinburgh / UK
2005	13	DSTO / University of Adelaide	Adelaide / Australia
2004	12	ESA	Ulm / Germany
2003	11	CSA	St. Hubert / Canada
2002	10	QinetiQ / BNSC	London / UK
2001	9	JAXA	Tokyo / Japan
1999	8	CNES/ESA	Toulouse / France
1998	7	ESA	Noordwijk / The Netherlands
1997	6	CSA/CCRS	Saint-Hubert / Canada
1994	5	University of Michigan	Ann Arbor / Michigan, US
1993	4	ESA	Noordwijk / The Netherlands
1992	3	CCRS	Ottawa / Canada
1991	2	DLR	Oberpfaffenhofen / Germany
1989	1	JPL	Pasadena / California, US

CEOS-WGCV – SAR Subgroup

The Committee on Earth Observation Satellites
Working Group on Calibration and Validation
Synthetic Aperture Radar Subgroup

Calibration and Validation for SAR Systems

Welcome to the Synthetic Aperture Radar (SAR) Subgroup of the CEOS Working Group on Calibration and Validation!

Workshop 2016

CEOS SAR 2016 will be held at Tokyo Denki University, Tokyo, Japan from September 7-9, 2016!

Past Proceedings

Proceedings from earlier workshops

Register!

Sign up to receive the newsletter (call for papers etc.)

This webpage shall become the central location for the CEOS WGCV – SAR Subgroup. Here, proceedings of last workshops, recommendations, and more will be collected and made publicly available to support the objectives of this sub group.

Our mission. The mission of the Synthetic Aperture Radar subgroup is to foster high-quality synthetic aperture radar data from airborne and spaceborne systems through precision calibration in radiometry, phase and geometry, and validation of higher level products. (More...)

Updated Recommendation: Adopting Equivalent Radar Cross Section (ERCS) as the Radiometric Measurement Quantity for SAR Images

Started by **Manfred Zink** 2 days ago · Edited · Public

This thread is hosted by the SAR Subgroup of the CEOS Working Group on Calibration and Validation.

It deals with an updated recommendation concerning the Adoption of ERCS as radiometric measurement quantity for SAR Images
https://www.loomio.org/d/QPIwuD4R/adopting-equivalent-radar-cross-section-ercs-as-the-radiometric-measurement-quantity-for-sar-images

Without touching the core idea of the ERCS concept we have drafted this updated proposal for a CEOS recommendation:

ACTIVITY

MZ **Manfred Zink** started a proposal: Adopt ERCS (update) 2 days ago

Manfred Zink updated the proposal description
2 days ago

MZ **Manfred Zink** updated the thread context 2 days ago

MZ **Manfred Zink** updated the thread context 2 days ago

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MZ **Manfred Zink** updated the thread context 2 days ago

Manfred Zink updated the proposal description
2 days ago

Manfred Zink updated the proposal description
2 days ago

Manfred Zink agreed 2 days ago
2 days ago

evert attema disagreed:
Hi Manfred,
This proposal sounds better than the previous attempt. However I worry about your statement about "averaging".
I propose to refer to an equivalent ideal isotropic point target and to take care of the deviation from ideal by convolution.
2 days ago

EA **evert attema**

PROPOSAL

Adopt ERCS (update)

Started by **Manfred Zink** · Closing in 6 days

The pixel intensity in a SAR image results from the convolution of the complex target reflectivity function with the complex SAR system impulse response function.

Up to now, radiometric calibration was based on reference point targets whose radar cross section (RCS) was precisely known at boresight and at the SAR center frequency. The existing approach neglects two problems:

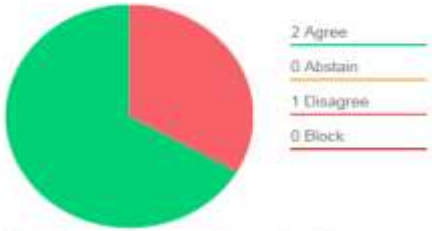
- Due to the convolution, the pixel intensity results from an "averaging" over frequency (range) and angle (azimuth).
- The pixel intensity does not only depend on amplitude (i.e., RCS), but also on the phase response of the target. Two targets with identical RCS may appear differently bright in a SAR image.

With modern high-resolution and high-accuracy SAR systems these problems become more severe and have to be considered during radiometric calibration. Instead of the reference target RCS, an "average" of the complex-valued (amplitude and phase) target response over the system bandwidth and angular range of the synthetic aperture has to be used. It is proposed to call this measurement quantity equivalent radar cross section (ERCS).

Reformulated recommendation:

Calibration of SAR systems and annotation of SAR products shall use the equivalent radar cross section (ERCS).

POSITIONS



38% of members have stated their position (3/8)

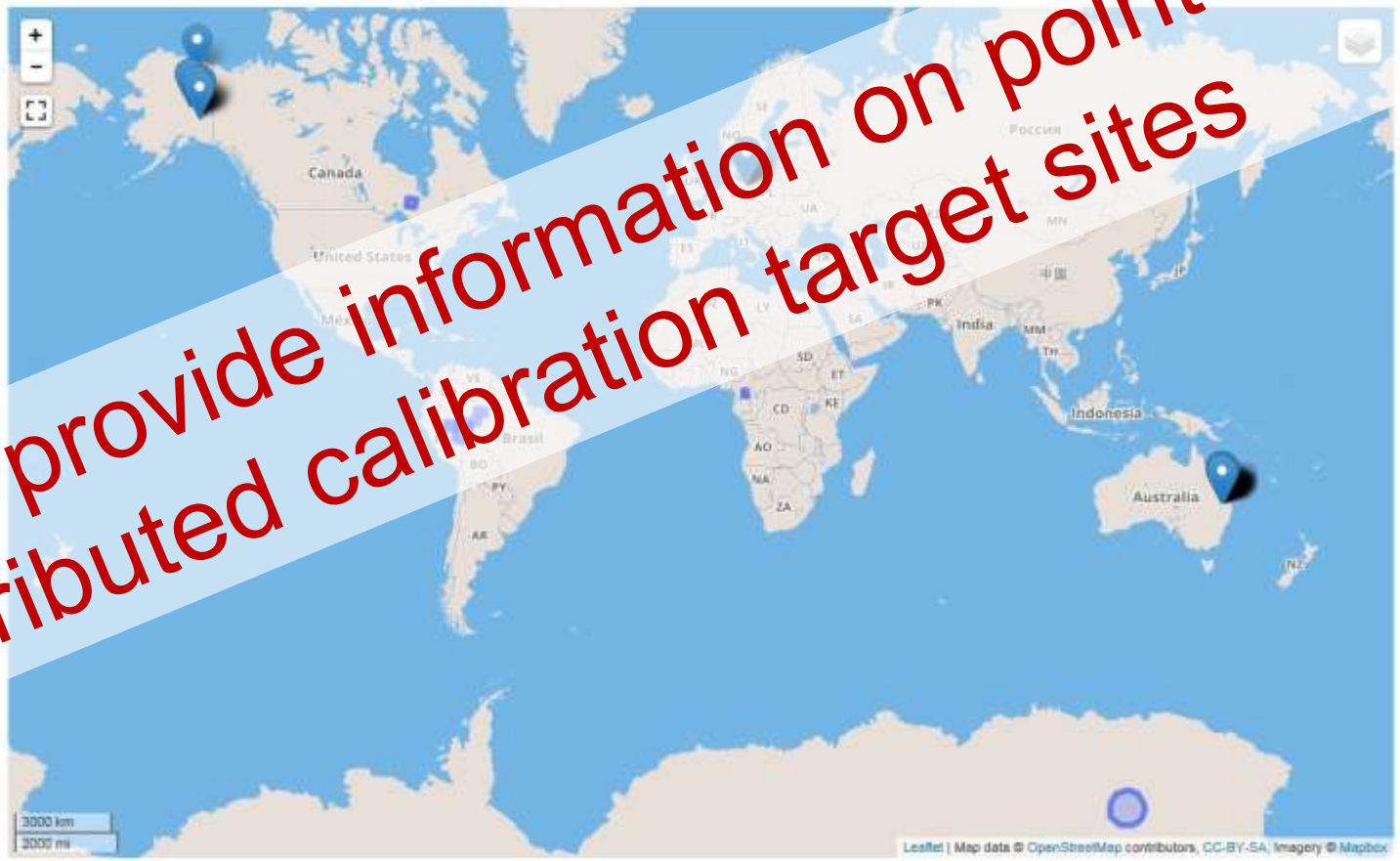
Björn Döring (DLR) agreed:
The new proposal captures the core idea: Distinguish RCS from what we actually measure.

Manfred Zink agreed.

evert attema disagreed:
Hi Manfred,
This proposal sounds better than the previous attempt.

Point and Distributed Targets Database

Our database currently lists 54 point and 11 distributed targets:



Access detailed point-target information by clicking on the marker on the map. The complete list of point-targets is also available as a KML formatted file:

Download target coordinates as KML file

please provide information on point & distributed calibration target sites

Workshop Proceedings (Presentations)

- ppt presentations will be collected on central presentation laptop

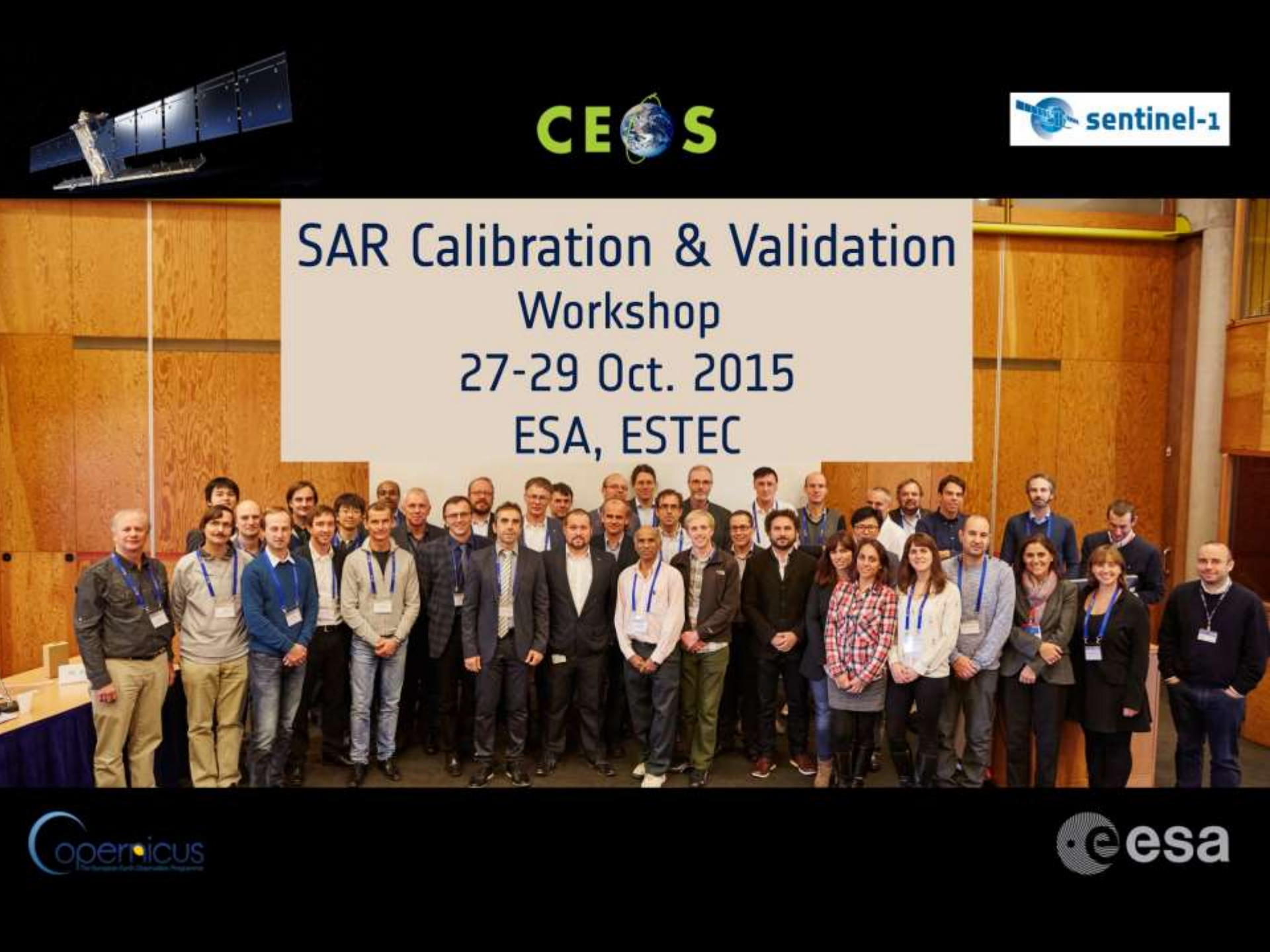
- a pdf-version of your presentation will be published on our website http://sarcv.ceos.org/

- **Please let us know, if you don't want to publish your presentation or only an adapted version!**

Session Summaries

- as in previous workshops session chairs are asked to prepare a short summary for the closing session on Friday

- please stick to the allocated time slots and leave a few minutes for Q&A after each presentation


SAR Calibration & Validation
Workshop
27-29 Oct. 2015
ESA, ESTEC