Minutes v1.0

CEOS-ARD Development Sprint and Oversight Group Meeting

Hosted by the United States Geological Survey (USGS)

Reston, VA, United States

14 September 2026

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Session A1: CEOS-ARD Product Family Specification (PFS) Consistency Sprint

A1.1: Opening, Welcome

Ferran Gascon (ESA, CEOS-ARD Oversight Group Lead) welcomed participants to the CEOS-ARD Product Family Specification (PFS) Consistency Sprint and reviewed the agenda. The primary purpose of this meeting is to hold the discussions and make decisions necessary to align common building blocks in the CEOS-ARD Framework, which is an important step towards having a coherent and fully functioning GitHub-based CEOS-ARD PFS implementation.

Evan Neuwirth (USGS) welcomed everyone to USGS Headquarters for the CEOS-ARD Oversight Group and LSI-VC-20 meetings.

A1.2: CEOS-ARD GitHub Status Update

Matthias Mohr (SEO) reviewed progress on the building blocks for the CEOS-ARD specifications. The GitHub migration is mostly complete and all PFS have been converted to the building block structure.

The update of the SAR PFS to the building blocks is mostly a formatting change, and will be presented for endorsement tomorrow. The SAR team has reviewed the new PFS, and the conversion itself is largely agreed, but the SAR team still needs to look at the XML metadata document.

The remarks field in the building blocks allows for internal notes about a certain requirement, which is only viewable in the editor, not in the final PFS.

There is not yet a link between the glossary in the PFS and the CEOS EO Glossary. The goal is to use the CEOS EO Glossary and converge to common definitions, following the guidelines in the Interoperability Handbook. Alignment of the glossaries should commence immediately. WGISS has proposed a workflow to handle conflicting definitions which can be referenced if needed. The process to define relevant terms needs to be considered when developing new PFS requirements, and this central role of the CEOS EO Glossary should be noted in the CEOS-ARD Governance Framework. It will be a responsibility of PFS lead authors to ensure alignment of the PFS with the glossary.

Input is needed from the CEOS-ARD Oversight Group regarding the prioritisation of the next steps for CEOS-ARD GitHub development, once the alignment of the PFS is completed.

CEOS-ARD Sept 2026 Action 01	Peter Strobl to initiate work with Dominik Weckmüller to align the glossary that appears in the current PFS with the CEOS EO Glossary, with a view to eliminating the PFS glossary and instead pointing readers to a complete and consolidated CEOS EO Glossary. This central role of the CEOS EO Glossary should be noted in the CEOS-ARD Governance Framework.	**LSI-VC-21**

OGC is evolving and changing to address standards at large, following a modular building block convention. We should ensure practical alignment with CEOS-ARD and OGC building blocks.

The process for commenting on CEOS-ARD building blocks is yet to be defined. The idea is that in both preview and editing mode, comments against any specific building block are shown. The PFS can be shared via the sharing functionality, and anyone can then make a comment. Then the PFS lead would be in charge of accepting or rejecting comments. Collaborative editing is not needed at this stage, as a situation where there would be active, concurrent editors would be very rare.

ARD OG Decision	Collaborative editing capabilities for the CEOS-ARD PFS Building Block editor will be deprioritised, as the number of concurrent collaborators would be limited and very infrequent.

The CEOS-ARD Governance Framework should clarify who is responsible for reviewing pull requests in all instances, be it changes to specific building blocks, PFS manifests, etc.

When comments are made and approved, this history is retained in the editor. However, comments can also be made natively through GitHub. These are currently not cross-referenced in the editor. It was proposed that for simplicity, all internal CEOS-ARD community feedback should be made as comments via the editor, while comments on GitHub should be only used by users that are external and don't have access/know how to use the editor.

CEOS-ARD Sept 2026 Action 02	Matthias Mohr to draft some language for the CEOS-ARD GitHub around how both CEOS members and external reviewers can provide comments on PFS Building Blocks. If possible, develop some mechanism to notify PFS lead editors when a comment is made on a corresponding Building Block in GitHub.	**LSI-VC-21**

The beta CEOS-ARD PFS Editor GUI is available here: https://editor.ceos-ard.moregeo.it

Feedback on the development of the assessor tool will be sought from Alex Brooks and Clement Albinet in the first instance. Development is continuing.

There is also work ongoing to map requirements as expressed in the building blocks to how it can be expressed in metadata. This can then support the automated validation. This would include a function to import a metadata file to compare against the requirements. The yaml requirements file could also include pointers to other specifications such as ISO standards and STAC metadata fields.

Sumit Sen (BIS India/IITB) tried extracting metadata from compliant products to map to requirements, but found it difficult. The idea was to map requirements to ISO classes. Ake Rosenqvist (JAXA) suggested looking at SAR NRB products, noting the mature XML metadata specification which is included.

A1.3: CEOS-ARD PFS Geospatial Representation Requirements Refinement Proposal

Ferran Gascon (ESA, CEOS-ARD Oversight Group Lead) reviewed the proposal from himself and Peter Strobl to refine geospatial representation requirements in CEOS-ARD. Four new requirements are defined to replace the current geometric corrections section: co-registration, geolocation, orthorectification, and gridding.

It is deliberately left open as to how the uncertainty is provided, whether that is 1σ, 2σ or 3σ, or whether it is provided per-pixel or per scene. Each specific PFS should define how uncertainty should be defined.

There is no requirement in SAR for co-registration at this stage.

Concerns were raised about the exemption for geolocation when products are not orthorectified.

It was noted that the orthorectification goal requirement will not be achievable by Sentinel-2 or S2NG.

Using a Digital Elevation Model (DEM) could be cited as an example, as a DEM is essential for geolocation. Geolocation also requires an image or Ground Control Point (GCP) library, along with a 3D surface model to establish orientation within the projection. However, because this definition is intended to be broadly applicable, overly specific land-focused criteria may not be appropriate. The SR version of the requirement could, for example, include examples on how it can be provided in that context, but we should aim to keep the new requirements generic so they are broadly applicable.

The Goal level requirement may be achievable by lower resolution products, e.g. meteorological products. However, high resolution sensors will not be able to achieve it. Dave Borges (SEO) warned against overly aspirational Goal requirements, to not disincentivize providers. In the Goal requirements, we should also consider the benefit for the end user, that is, why are we asking for a requirement.

USGS will not cover per-pixel uncertainty in Collection 3, due to the data volume.

The requirement could specify that a tool to compute per-pixel uncertainty be provided, which would get around the data volume issue.

These proposed changes to the geometry requirements need to be reviewed against the current requirements, to confirm they are non-breaking changes.

The gridding requirements also aim to clarify how a grid is defined. This only applies if the dataset is presented as a grid.

CEOS-ARD Sept 2026 Action 03	Everyone to review the new geospatial representation requirements proposed by Peter Strobl and Ferran Gascon. Attention should also be given to applicability for relevant products and potential for breaking changes to emerge. *<u>Note:</u> Aim to get a PFS update implemented ASAP as this is holding up a number of assessments.*	**5 October 2026**

A1.4: Discussion: Achieving Consistency in the Optical and SAR PFS by Aligning and Consolidating Common/Similar Building Blocks

CEOS-ARD PFS Consistency Sprint conclusions are highlighted below and summarised in the table in Appendix C

<u>Documentation of Requirements</u>

Some requirements ask for information to be provided by URL or DOI. Should we be specifying how, or leave it to the provider to decide how to provide such information?

From the USGS perspective, any documentation or further information about a product has to be provided through a DOI. A URL can change, but a DOI will provide persistence.

It was also unclear whether a DOI is needed for each individual requirement, or if one DOI with all product information is sufficient. It was clarified through the discussion that multiple requirements can point to the same DOI / URL.

USGS provides the DOI in one location, and all the information that a user needs is provided via that DOI. Agencies may not have the resources to provide individual DOIs for every requirement.

Perhaps in the same way as done for data formats, we should be less prescriptive in the specifications, instead specifying only that the information needs to be provided in a persistent identifiable manner.

A URL is only compliant with the specifications if it is active. If the URL is active when the assessment is completed, and later fails, the product would no longer be CEOS-ARD compliant. Without continuous monitoring however, this will not be picked up.

Requirement	Decision(s)
Various / General	Change all "provide as URL or DOI", to "in the metadata or as a machine and human readable persistent identifier, e.g. DOI". Ensure 'identifier' is defined in the glossary aligned with the WGISS Persistent Identifier Best Practice.

Should the requirement specify that the DOIs be provided in the metadata, or just documented somewhere? Traceability between metadata and requirements is needed.

Ideally a CEOS-ARD product should ensure the information is machine readable, and the user should not have to go to a separate webpage and look for the information themselves. However, we will park this for now, and accept that CEOS-ARD just aims to ensure the information is available *somewhere* for verification by users.

Product vs Source & Data Access

The SAR specifications have both 'product' and 'source' requirements. To make the requirements reusable, this would need to be generalised. The SAR group has agreed to override the generalisation for the SAR PFS with explicit titles to remain for product and source, as the titles in the PFS are used to reference the XML metadata file.

As these requirements all sit under a related section title e.g. 'Source metadata', the requirement could just be a generic e.g. 'data access'. The SAR group would like to keep it as e.g. 'Source data access', to support non-chronological searching of metadata and requirements.

The product data access requirement for SAR is proposed to be split into two requirements: one for data access, and one for processing details. The SAR team took an action to confirm (see CEOS-ARD Sept 2026 Action 05 below).

Requirement	Decision(s)
Data Access	Adopt a generic Data Access block by removing mention of 'source' from the building block "daccess". SAR PFS will maintain an override so 'product' and 'source' remain distinct, since they map to XML metadata fields. Threshold requirement: "The location from where the data can be retrieved is identified, in the metadata or as a machine and human readable persistent identifier, e.g. DOI". Notes: "Manual or offline action (e.g., registration or login) may be required." Optical PFS will adopt the Goal requirement for data access as defined by SAR. SAR PFS team will confirm whether the proposed change to break up the product Data Access requirement into two separate requirements (one for data access, one for the processing details) is acceptable (see action *CEOS-ARD Sept 2026 Action 05*).

Directional Atmospheric Scattering

The proposal to adopt the Threshold description from AR for SR was agreed. The AR requirements include a reference to Mobley et al., 2016, which would not be relevant for SR. An override would need to be created to include this note for AR but not for SR.

Under the 'products and algorithms' heading, the AR PFS specifies that all corrections should come with a citable reference. We could delete this, and all individual paper references in the PFS.

CEOS-ARD Sept 2026 Action 04	LSI-VC Secretariat to convene the Aquatic Reflectance PFS team to review the necessity of references throughout the PFS requirements, as well as the note under the 'products and algorithms' heading that specifies that all corrections should come with a citable reference. Eliminating this would make alignment of the PFS easier.	**LSI-VC-21**

Requirement	Decision(s)
Directional	SR will adopt the AR Threshold description for Directional Atmospheric Scattering.

Atmospheric Scattering	An override for AR will be created such that the notes still read 'see @mobley2016'.

Auxiliary Data

For SAR, the requirement to specify auxiliary data is a Goal requirement, while optical products are required to specify auxiliary data at Threshold.

The title is ambiguous; it is more about documenting the data source.

The definition of auxiliary data is included in the CEOS EO Glossary, and the notes currently in the requirement are possibly not necessary. Agreed to keep the notes to avoid any ambiguity.

It is important to still list the auxiliary data sources, even if they are proprietary, so a user can understand the fitness of purpose for their needs.

Requirement	Decision(s)
Auxiliary Data	Adopt Threshold description: "Lists the sources of auxiliary data used in the generation process, in the metadata or as a machine and human readable persistent identifier, e.g. DOI" Notes: "Auxiliary data includes DEMs, and any additional data sources used in the generation of the product." SAR will adopt the same requirement as above, but at the Goal level. For optical Goal level: "As threshold, but auxiliary data should be freely accessible online."

Coordinate Reference System

The optical PFS have a separate requirement for map projection, while SAR includes the map projection requirement within the CRS requirement.

This requirement will be addressed as part of the proposed geospatial representation requirements refinement.

Agreed that all PFS will adopt the CRS requirement as defined by SAR.

Requirement	Decision(s)
Coordinate	Adopt Threshold description: "The metadata lists the map projection (or

Reference System	geographical coordinates, if applicable) that was used and any relevant parameters required to geolocate data in that map projection, expressed in a standardised format (e.g., WKT). Indicate EPSG code, if defined for the CRS."
Map Projection	Remove this requirement for optical PFS since it has been merged with the Coordinate Reference System requirement.

Geographical Area

The SAR PFS has named this requirement 'Product Geographical Extent' as they need to specify the SAR footprint as well. This relates to the bounding box not necessarily being the same as the SAR footprint.

Geographical extent is understood by some as lat/long max/min. The SAR PFS has 'product bounding box' and 'product geographical extent'. Bounding box isn't generalisable beyond rectangular shapes, but the SAR PFS doesn't specify how many points should be provided. Peter Strobl (EC, LSI-VC Co-lead) recommended that a polygon be provided.

Optical describes both 'product bounding box' and 'product geographical extent' in one requirement, but a bounding polygon is only required at Goal level.

There is no consistency in the community with regard to defining bounding boxes, geographical extent, footprint, etc.

A new Threshold requirement was proposed for SAR: "The geometry of the SAR image footprint expressed in long/lat based on an appropriate CRS, in a standardised format (e.g. WKT Polygon)".

Requirement	Decision(s)
Geographical Area	No decision made. Awaiting further review by the SAR team (see action *CEOS-ARD Sept 2026 Action 05* below*)*.

CEOS-ARD Sept 2026 Action 05	Ake Rosenqvist to convene the SAR PFS team to answer: • Should the Auxiliary Data Threshold requirement also be adopted by the SAR PFS at Threshold level, rather than Goal. • Whether the proposed change to break up the product Data Access requirement into two separate requirements	**LSI-VC-21**

	(one for data access, one for the processing details) is acceptable. • Whether the team accepts the proposed changes resulting from the Development Sprint to the requirements for item 3.8 (Geographical Area) and Metadata Machine Readability.	

Instrument

Requirement	Decision(s)
Instrument	Adopt the following: Threshold: "The instrument used to collect the data is identified: - Satellite name - Instrument name" Goal: "As threshold, with references to the relevant [CEOS Missions, Instruments, and Measurements (MIM) database] (https://ceos.org/mim-database) record."

Peter Strobl noted ongoing discussion in the CEOS Missions, Instruments and Measurements Database context regarding canonical identifiers for missions and instruments. It was agreed that we wait for a resolution in that context and then simply adopt.

Metadata Machine Readability

The proposal was to adopt the SAR wording for threshold, using 'variable' instead of 'part'. For the Goal requirement for SAR, previously it strongly suggested that the metadata is provided as per the CEOS-ARD SAR Metadata Specification, with other community standards provided as alternative options.

Requirement	Decision(s)
Metadata Machine Readability	Adopt the following: Threshold: "Metadata is provided in a structure that enables a computer algorithm to be used to consistently and automatically identify and extract each component variable for further use." Goal: "As threshold, but metadata is provided in a community endorsed standard that facilitates machine-readability, such as preferably CEOS-ARD Metadata Specifications, or ISO 19115-2, STAC, the Climate and Forecast (CF) convention, or

	the Attribute Convention for Data Discovery (ACDD). Agreed to remove this requirement from the Per-pixel Metadata section, as it is redundant with what appears in the General Metadata section.

Radiometric Accuracy

There are multiple differences between how this is handled across the PFS. This needs further review before a proposal can be made.

Requirement	Decision(s)
Radiometric Accuracy	No decision made. Await further review of the differences. See action *CEOS-ARD Sept 2026 Action 06* below.

CEOS-ARD Sept 2026 Action 06	Matthias to review the differences across the PFS for radiometric accuracy, noting it is called 'Measurand Uncertainty' in the Surface Temperature PFS. The change from 'accuracy' to 'uncertainty' is a key point, first corrected in Aquatic Reflectance PFS v2.	**December 2026**

Sensor Calibration

The requirements do not need to distinguish between sensor calibration and product calibration, as everything done post-launch is product calibration. Agreed to focus on calibration of the system as a whole.

The current goal requirement is vague as to what sensor calibration parameters are required.

The threshold requirement should simply be that the sensor is calibrated.

Requirement	Decision(s)
Sensor Calibration	Adopt the following: Threshold: "Sensor must be calibrated" Goal: "Sensor calibration parameters are identified or can be accessed using details included in the metadata. Ideally this would support machine-to-machine access." Agreed to delete the notes that appear in the NLSR and SR PFS.

Atmospheric Corrections

Agreed to change the title from 'Corrections for Atmosphere' to 'Atmospheric Corrections'. The content of the requirement requires further review.

The NLSR PFS implies no corrections are needed for absorption, only atmospheric scattering. SR has multiple blocks, while NLSR lumps them all into one. Ferran Gascon proposed removing the specificity from the SR PFS, making it such that we only ask that atmospheric correction is applied somehow and then documented.

Requirement	Decision(s)
Corrections for Atmosphere	Agreed to change title to Atmospheric Corrections. The content of the requirement requires further review, see action *CEOS-ARD Sept 2026 Action 07*.

CEOS-ARD Sept 2026 Action 07	Ferran Gascon and Chris Barnes to review the Atmospheric Correction requirement across all optical PFS and make a proposal to harmonise these. NLSR lumps this requirement into one, whereas SR deals with components individually. Could be simplified to only ask that atmospheric correction is applied and the approach communicated.	**December 2026**

Data Collection Time

The NLSR and SR PFS do not specify compliance with ISO 8601. SAR has two time requirements: one from the general metadata section, and one for source metadata.

It was clarified that 'Data collection' refers to 'Data acquisition'. 'Collection' should not be confused with a collection of products (e.g., Landsat Collection 2).

Agreed to use 'acquisition' instead of 'collection'. Further harmonisation awaits review as to whether all currently compliant SR products use the ISO 8601 specification for data collection time.

Requirement	Decision(s)
Data Collection Time	Agreed to use 'acquisition' instead of 'collection' since the latter can be confused with archive collections. Further harmonisation awaits review as to whether all currently compliant SR products use the ISO 8601 specification for data collection time (see action *CEOS-ARD Sept 2026 Action 08* above).

CEOS-ARD Sept 2026 Action 08	Chris Barnes to check all compliant Surface Reflectance products to see if they are in agreement with the ISO 8601 specification for Data Collection Time. Otherwise, this proposed change will be a breaking change and needs further scrutiny.	**December 2026**

Traceability

The ST PFS title of this requirement is the much more descriptive and unambiguous 'Metrological Traceability of the Measurand to SI'. Other PFS just list 'Traceability', which is confusing.

The AR PFS has an additional Threshold requirement, which requests that the measurand and the units be fixed. There is an open question as to whether all PFS should require specific units for the measurand. An override will be added for the AR PFS for now.

Requirement	Decision(s)
Traceability	Agreed to change title to 'Metrological Traceability of the Measurand'. Agreed to add an override for the AR Threshold requirement that specifically defines the units of the measurand. Further harmonisation awaits consideration of whether other PFS will ask for specific measurand units. This is complicated by the fact that this will inherently differ for every PFS, impacting the ability to harmonise the PFS.

CEOS-ARD Sept 2026 Action 09	CEOS-ARD PFS leads to consider whether all PFS should report their measurand units under the Traceability requirement.	**LSI-VC-21**

Session A2: Other CEOS-ARD Oversight Group Topics

A2.1: CEOS-ARD Discoverability and Accessibility

Yves Coene (ESA/Spacebel) reviewed the activity to improve discoverability and accessibility of CEOS-ARD within the WGISS Connected Data Assets.

Yves is working with the SEO on the implementation of URIs and the structure of the domain/subdomain. Other questions remain about the structure, conventions, and hosting mechanism. The update to URIs is expected to become part of the approval process for a new or updated PFS.

A FedEO STAC API update, with CEOS-ARD details available in relevant collections is also ongoing. The chosen approach assumes collection metadata will be annotated as per the WGISS *Guidance to Enable Discoverability of Specialised Datasets*. CEOS-ARD datasets can now be discovered via the ARD portal on FedEO: https://fedeo.ceos.org/ard/

Discussion highlighted that it would be beneficial if all CEOS-ARD products were discoverable via CDA, even those from the private sector. Yves confirmed that technically, adding commercial data is possible, however doing so would need to be consistent with the agreed conventions for CDA.

CEOS-ARD Sept 2026 Action 10	Yves Coene to check with WGISS leadership regarding whether CEOS-ARD compliant commercial data should be added to the WGISS Connected Data Assets.	**LSI-VC-21**

A2.2: CEOS-ARD Governance Framework Update

Matt Steventon (CEOS-ARD Secretariat) reviewed the Governance Framework update, which is needed following a significant number of changes to CEOS-ARD governance, most notably the switch to the Building Blocks and GitHub. The document will grow and become clearer as we further define the roles and responsibilities associated with GitHub.

Following feedback from USGS at LSI-VC-19, the document now includes guidance for PFS development teams in ensuring that specifications are useful, attainable, and realistic.

With its inclusion in the new Framework, CEOS-ARD will adopt the processing level schema proposed by Peter Strobl. There was a discussion around the terminology in this schema and some inconsistencies with the newly proposed geospatial representation requirements, which will need to be aligned before endorsement.

The Framework now includes a number of flow charts to document the process by which PFS are developed and updated. Further updates are needed to clarify the roles and responsibilities for specific aspects of the update process. A register of official points of contact for PFS and GitHub functions needs to be maintained and reference added to the Governance Framework.

CEOS-ARD Sept 2026 Action 11	CEOS-ARD Secretariat to prepare another update of the CEOS-ARD Governance Framework to address the outstanding issues from LSI-VC-20/CEOS-ARD Development Sprint and Oversight Group Meeting.	**November 2026**
CEOS-ARD Sept 2026 Action 12	Peter Strobl, Ferran Gascon, Chris Barnes and Ake Rosenqvist to refine the geometry terms in the new CEOS-ARD Product Level Categorisation that features in the new CEOS-ARD Governance Framework, ensuring consistency with the newly proposed geospatial representation requirements.	**LSI-VC-21**

A2.3: 'Decision-ready' Information and Higher Level CEOS-ARD Products

David Borges (NASA, SEO) reviewed the SIT Chair Team's work to update the CEOS Data Value Chain. At the SIT Technical Workshop, discussion converged on a linear representation being the most appropriate. Understanding user needs and motivations will be specifically referenced in the next version. Cultivating trust is a cross-cutting element of the value chain, which is an important role for CEOS.

Regarding the AI value chain model example, Peter Strobl noted that the model is a complete surrender to the 'black box'.

Peter noted the need for more specificity in the high level value chain steps. The SIT Chair's work should be constrained to a data value chain; from data to information.

Dave doesn't support CEOS pursuing 'decision-ready data', suggesting instead that we focus efforts on the CEOS-ARD Framework. It was noted that strictly an input that is decision-ready is not data, but information; Decision Ready Information would be the correct way to characterise it. This is, in general, beyond the remit of CEOS.

It might be worth considering if we need a communication from the CEOS-ARD Oversight Group to WGISS to recommend the 'CEOS DRD' concept be dropped, as it is confusing to the community. It is complex enough to define what is meant by ARD, and the emergence of a 'CEOS-DRD' gives the impression of a disorganised CEOS and is unclear messaging to the broader community. At the very least, it should not be 'decision-ready data' but rather 'decision-ready information'.

A2.4: CEOS-ARD Strategy 2026-2031

Matt Steventon (CEOS-ARD Secretariat) reviewed the feedback from participants at the SIT Technical Workshop on the draft CEOS-ARD Strategy 2026-2031:

- It was requested that more detail be added to the Initiatives and Tasks table regarding the expertise, skillsets, and an estimate of the level of commitment needed to achieve each outcome.
- The AI/SI pillar tasks were deemed to be too broad to be assigned effectively, so the WGISS Chair and Technology Exploration Interest Group (TEIG) committed to proposing a more appropriate discretisation of the Initiatives and Tasks to make them actionable and assigned.
- The WGISS Technology Exploration Interest Group (TEIG) will remain as the focal point for AI/SI in CEOS for now; there was no strong call for a new dedicated group to be created under WGISS or otherwise. The next WGISS meeting agenda will have a focus on AI/SI.
- CEOS-ARD will use the NASA-ESA-USGS Quality Assessment Framework (QAF) as the backbone of the quality indicators for CEOS-ARD. CEOS will consider adopting the QAF more broadly as well, as a CEOS best practice; this discussion will be carried forward by WGCV.
- Continued engagement with the commercial sector was highlighted as key to the success of CEOS-ARD. The feedback received from EarthDaily and Synspective, for example, is extremely valuable to help drive uptake.

CEOS-ARD Sept 2026 Action 13	Everyone to review the CEOS-ARD Strategy initiative spreadsheet, specifically the required skills defined for each task in column O.	**9 October 2026**

A2.5: Closing

Ferran Gascon (ESA, CEOS-ARD Oversight Group Lead) thanked everyone for participating in the discussions. The PFS consistency work will continue with a series of teleconferences.

Appendix A: Participants

Organisation	Name
Agriculture and Agri-Food Canada	Andrew Davidson*
BIS India/IITB	Sumit Sen*
CEOS-ARD Secretariat	Libby Rose
CEOS-ARD Secretariat	Matthew Steventon
CSA	Laura-Alexe Marcoux*
EC-JRC	Peter Strobl
ESA	Ferran Gascon
ESA / Spacebel	Yves Coene*
Geoscience Australia	Matthew Adams*
GISTDA	Pawarin Kuha
GISTDA	Prayot Puangjaktha
IEEE	SiriJodha Khalsa*
INPE	Mariane Reis*
JAXA/soloEO	Ake Rosenqvist
JPL	Nicholas Parazoo*
NASA	David Borges
NASA	Maggie Wooten*
NOSA	Ola Nordbeck*
SANSA	Cecilia Masemola *
SatVu	Jamie McMillan*
SEO	Matthias Mohr
USGS	Cody Anderson*
USGS	Evan Neuwirth
USGS/KBR	Christopher Barnes
USGS/KBR	Megan Rush*

* Virtual participation

Appendix B: Actions and Decisions

ARD OG Decision	Collaborative editing capabilities for the CEOS-ARD PFS Building Block editor will be deprioritised, as the number of concurrent collaborators would be limited and very infrequent.

CEOS-ARD Sept 2026 Action 01	Peter Strobl to initiate work with Dominik Weckmüller to align the glossary that appears in the current PFS with the CEOS EO Glossary, with a view to eliminating the PFS glossary and instead pointing readers to a complete and consolidated CEOS EO Glossary. This central role of the CEOS EO Glossary should be noted in the CEOS-ARD Governance Framework.	**LSI-VC-21**
CEOS-ARD Sept 2026 Action 02	Matthias Mohr to draft some language for the CEOS-ARD GitHub around how both CEOS members and external reviewers can provide comments on PFS Building Blocks. If possible, develop some mechanism to notify PFS lead editors when a comment is made on a corresponding Building Block in GitHub.	**LSI-VC-21**
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CEOS-ARD Sept 2026	Ake Rosenqvist to convene the SAR PFS team to answer:	**LSI-VC-21**

Action 05	• Should the Auxiliary Data Threshold requirement also be adopted by the SAR PFS at Threshold level, rather than Goal. • Whether the proposed change to break up the product Data Access requirement into two separate requirements (one for data access, one for the processing details) is acceptable. • Whether the team accepts the proposed changes resulting from the Development Sprint to the requirements for item 3.8 (Geographical Area) and Metadata Machine Readability.	
CEOS-ARD Sept 2026 Action 06	Matthias to review the differences across the PFS for radiometric accuracy, noting it is called 'Measurand Uncertainty' in the Surface Temperature PFS. The change from 'accuracy' to 'uncertainty' is a key point, first corrected in Aquatic Reflectance PFS v2.	**December 2026**
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CEOS-ARD Sept 2026 Action 10	Yves Coene to check with WGISS leadership regarding whether CEOS-ARD compliant commercial data should be added to the WGISS Connected Data Assets.	**LSI-VC-21**
CEOS-ARD Sept 2026 Action 11	CEOS-ARD Secretariat to prepare another update of the CEOS-ARD Governance Framework to address the outstanding issues from	**November 2026**

	LSI-VC-20/CEOS-ARD Development Sprint and Oversight Group Meeting.	
CEOS-ARD Sept 2026 Action 12	Peter Strobl, Ferran Gascon, Chris Barnes and Ake Rosenqvist to refine the geometry terms in the new CEOS-ARD Product Level Categorisation that features in the new CEOS-ARD Governance Framework, ensuring consistency with the newly proposed geospatial representation requirements.	**LSI-VC-21**
CEOS-ARD Sept 2026 Action 13	Everyone to review the CEOS-ARD Strategy initiative spreadsheet, specifically the required skills defined for each task in column O.	**9 October 2026**

Appendix C: CEOS-ARD PFS Consistency Sprint Conclusions

Requirement	Decision(s)
Various / General	Change all "provide as URL or DOI", to "in the metadata or as a machine and human readable persistent identifier, e.g. DOI". Ensure 'identifier' is defined in the glossary aligned with the WGISS Persistent Identifier Best Practice.
Data Access	Adopt a generic Data Access block by removing mention of 'source' from the building block "daccess". SAR PFS will maintain an override so 'product' and 'source' remain distinct, since they map to XML metadata fields. Threshold requirement: "The location from where the data can be retrieved is identified, in the metadata or as a machine and human readable persistent identifier, e.g. DOI". Notes: "Manual or offline action (e.g., registration or login) may be required." Optical PFS will adopt the Goal requirement for data access as defined by SAR. SAR PFS team will confirm whether the proposed change to break up the product Data Access requirement into two separate requirements (one for data access, one for the processing details) is acceptable (see action *CEOS-ARD Sept 2026 Action 05*).
Directional Atmospheric Scattering	SR will adopt the AR Threshold description for Directional Atmospheric Scattering. An override for AR will be created such that the notes still read 'see @mobley2016'.
Auxiliary Data	Adopt Threshold description: "Lists the sources of auxiliary data used in the generation process, in the metadata or as a machine and human readable persistent identifier, e.g. DOI" Notes: "Auxiliary data includes DEMs, and any additional data sources used in the generation of the product." SAR will adopt the same requirement as above, but at the Goal level. For optical Goal level: "As threshold, but auxiliary data should be freely accessible online."

Requirement	Decision(s)
Coordinate Reference System	Adopt Threshold description: "The metadata lists the map projection (or geographical coordinates, if applicable) that was used and any relevant parameters required to geolocate data in that map projection, expressed in a standardised format (e.g., WKT). Indicate EPSG code, if defined for the CRS."
Map Projection	Remove this requirement for optical PFS since it has been merged with the Coordinate Reference System requirement.
Geographical Area	No decision made. Awaiting further review by the SAR team (see action *CEOS-ARD Sept 2026 Action 05* above*)*.
Instrument	Adopt the following: Threshold: "The instrument used to collect the data is identified: - Satellite name - Instrument name" Goal: "As threshold, with references to the relevant [CEOS Missions, Instruments, and Measurements (MIM) database] (https://ceos.org/mim-database) record."
Metadata Machine Readability	Adopt the following: Threshold: "Metadata is provided in a structure that enables a computer algorithm to be used to consistently and automatically identify and extract each component variable for further use." Goal: "As threshold, but metadata is provided in a community endorsed standard that facilitates machine-readability, such as preferably CEOS-ARD Metadata Specifications, or ISO 19115-2, STAC, the Climate and Forecast (CF) convention, or the Attribute Convention for Data Discovery (ACDD). Agreed to remove this requirement from the Per-pixel Metadata section, as it is redundant with what appears in the General Metadata section.
Radiometric Accuracy	No decision made. Await further review of the differences. See action *CEOS-ARD Sept 2026 Action 06* above.
Sensor Calibration	Adopt the following: Threshold: "Sensor must be calibrated" Goal: "Sensor calibration parameters are identified or can be accessed using details included in the metadata. Ideally this would support machine-to-machine access."

Requirement	Decision(s)
	Agreed to delete the notes that appear in the NLSR and SR PFS.
Corrections for Atmosphere	Agreed to change title to Atmospheric Corrections. The content of the requirement requires further review, see action *CEOS-ARD Sept 2026 Action 07*.
Data Collection Time	Agreed to use 'acquisition' instead of 'collection' since the latter can be confused with archive collections. Further harmonisation awaits review as to whether all currently compliant SR products use the ISO 8601 specification for data collection time (see action *CEOS-ARD Sept 2026 Action 08* above).
Traceability	Agreed to change title to 'Metrological Traceability of the Measurand'. Agreed to add an override for the AR Threshold requirement that specifically defines the units of the measurand. Further harmonisation awaits consideration of whether other PFS will ask for specific measurand units. This is complicated by the fact that this will inherently differ for every PFS, impacting the ability to harmonise the PFS.