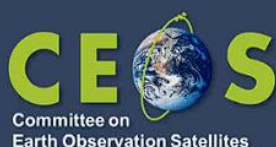


# WGCV-53

## 1<sup>st</sup> Surface Reflectance Inter-comparison eXercise for Vegetation (SRIX4Veg-1)



Valentina Boccia, ESA

Agenda Item #3.2

WGCV-53, Córdoba, Argentina

7<sup>th</sup> March 2024

## SRIX4Veg-1



### Also on behalf of all the SRIX4Veg-1 Cooperating Agencies, Partners and Participants:

Niall Origo, Chloe Randall, Rosalinda Morrone, Morven Sinclair, Harry Morris, Bernardo Mota, Matthew Scholes, Rasma Ormane (NPL)

F. Camacho, J. Sanchez-Zapero (EOLab)

J Dash (Uni. Southampton)

L. Brown (Uni. Salford)

V. Boccia (ESA)

J. González Piqueras, A. Molina Medina (UCLM)

R. López Urrea (ITAP)

SRIX4Veg Participants: NPL, GFZ, NERC, NRC, RIT, WUR, GEOK

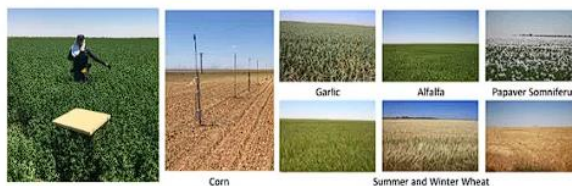
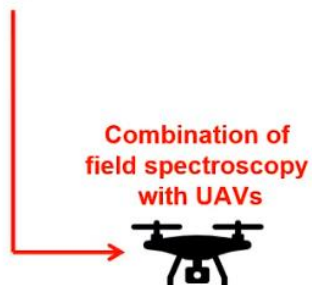
SRIX4Veg Cooperating Agencies: ASI, CSIRO, DLR, GA, USGS



## SRIX4Veg-1: Why? (1/2)



Surface Reflectance measurements have been traditionally made with hand held instruments...



UAV-mounted instruments are lighter, cheaper and easier to use

Growing interest in UAV-based hyperspectral systems

### Advantages

- Cover a greater area coincident with satellite overpass
- Remove site disturbances
- Measure inaccessible sites
- Measurements at much greater height
- Compliment permanent infrastructure

## SRIX4Veg-1: Why? (2/2)



- Protocols around this are yet to be developed and lots of people are developing different things (some more systematically than others)
- The idea of SRIX4Veg was to assess the variability associated with different teams conducting the same validation work
- Then move towards a community-agreed protocol to reduce this variability



Two types of experiments were conducted during SRIX4Veg-1:

1. SR validation data collected by the Participants following a pre-defined initial protocol (developed by the SRIX4Veg organising team, CSIRO, USGS, DLR, and GA)
2. SR validation data collected by the Participants as they would do (given some pre-defined information)

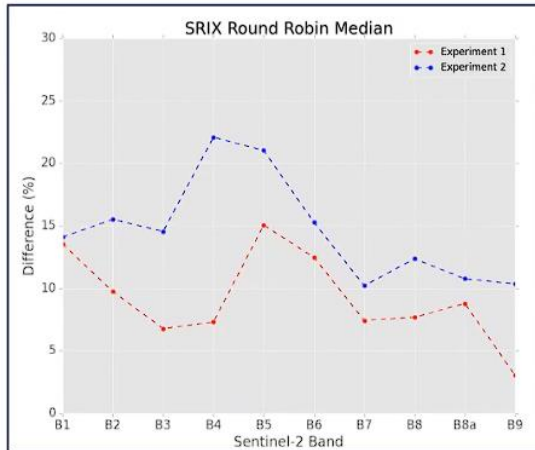
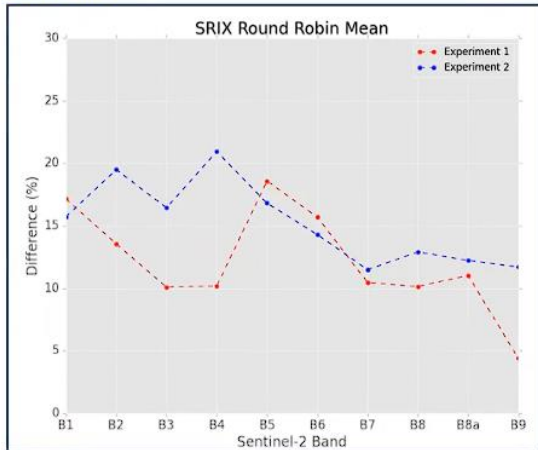
Following feedback from the Participants, the draft protocol is being refined and proposed as a community good practice protocol.

# SRIX4Veg-1: Outcome



**Experiment 1:** SR validation data collected by the Participants following a **pre-defined initial protocol** (developed by the SRIX4Veg organising team, CSIRO, USGS, DLR, and GA)

**Experiment 2:** SR validation data collected by the Participants **as they would do** (given some pre-defined information)

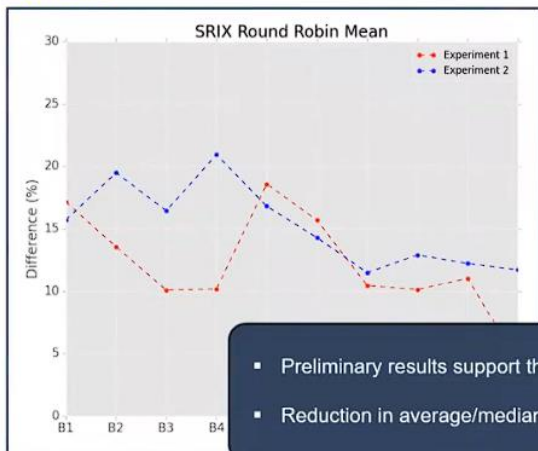


# SRIX4Veg-1: Outcome



**Experiment 1:** SR validation data collected by the Participants following a **pre-defined initial protocol** (developed by the SRIX4Veg organising team, CSIRO, USGS, DLR, and GA)

**Experiment 2:** SR validation data collected by the Participants **as they would do** (given some pre-defined information)



- Preliminary results support the need for a protocol
- Reduction in average/median difference can be as high as 15%

# SRIX4Veg-1: 2<sup>nd</sup> Workshop



- ❖ Post-campaign Workshop held at ESA-ESRIN (Frascati, Italy) and virtual on 23<sup>rd</sup>-24<sup>th</sup> November 2023
- ❖ Participants attended to discuss results, challenges, successes, and to design and allocate work and contributions to the **draft Protocol for Surface Reflectance Validation using UAVs**

SRIX4Veg: Agenda for Workshop 2		
Location: Room E, Building 2, ESA ESRIN (all times CET)		
Day 1 (23/11/2023): Results ( <a href="#">Teams link</a> )		
14:00 Start and Welcome		
14:10	Recap: What is SRIX4Veg?	Niall Origo (NPL)
14:30	International basis for SRIX4Veg: ESA perspective	Valentina Boccia (ESA)
14:40	CEOS perspective	Fabrizio Niro (Serco)
15:00	SRIX4Veg team perspectives	All participants
16:00 Coffee break		
16:20	Scientific results from SRIX4Veg	Niall Origo (NPL)
16:40	Lessons learned from SRIX4Veg	Harry Morris (NPL)
16:50	Outcomes of SRIX4Veg	Niall Origo (NPL)
17:10	Feedback from the community (round table)	All
18:20 Close meeting		
SRIX4Veg: Agenda for Workshop 2		
Location: Room E, Building 2, ESA ESRIN (all times CET)		
Day 2 (24/11/2023): Protocol ( <a href="#">Teams link</a> )		
09:00 Start and Welcome		
09:10	SRIX4Veg 2: Australia	Ian Lau (CSIRO)
09:30	Presenting the protocol template, proposed time scale & proposed scope	Niall Origo (NPL)
09:50	Protocol formulation (round table)	All
10:50 Coffee break		
11:00 Group photo		
11:10	Protocol formulation continued (round table)	All
13:30 Close meeting		



WGCV-53, 5-8 March 2024

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## Good Practice Protocol



### Proposed Time-schedule for the Good Practice Protocol for Surface Reflectance Validation using UAVs:

- ❖ Draft Protocol expected to be sent out to CEOS-WGCV for review and contribution **next week** (CEOS WGCV LPV and IVOS)
- ❖ **Review by CEOS-WGCV (LPV and IVOS) by early June** (e.g., by 3<sup>rd</sup> June 2024) – To be confirmed by CEOS
- ❖ Submission to CEOS of the updated version in **early September 2024**
- ❖ Notes:

- Primary request to CEOS is for guidance on structure and presentation of the information
- Content is expected to be complete, but please advise if anything is unclear/missing (!)
- The Protocol will include a synthesised set of recommendations pointing to more detailed explanation in other parts of the document
- Conclusions & knowledge gaps to be added after CEOS review
- Formatting & cosmetics to be completed after CEOS review

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