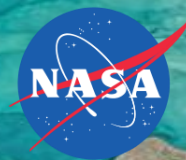


Atmospheric Correction Inter-comparison eXercise - ACIX - AQUA

Nima Pahlevan & Antoine Mangin

*International Ocean Color Science Meeting
Busan 2019*





WHY?



Free and open access policy to **Sentinel-2** and **Landsat-8** imagery has stimulated the development and operational use of **AC processors** for generating Bottom-of-Atmosphere (BOA) products



The objective was to address:

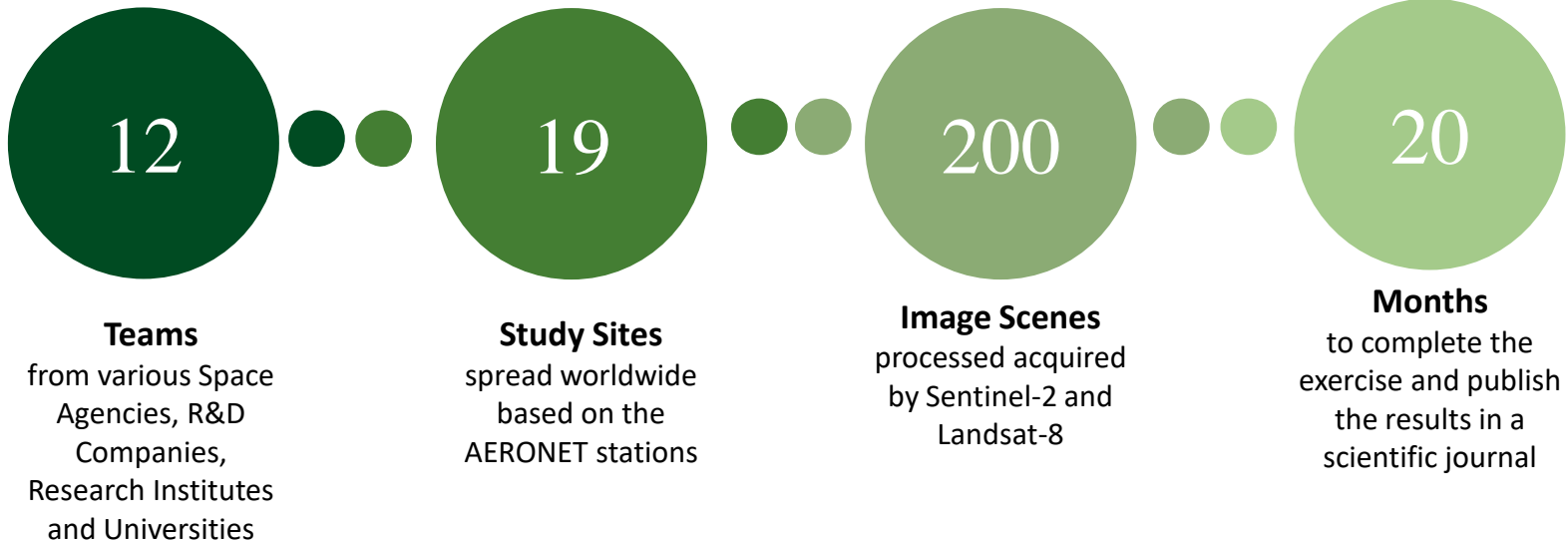
- Strengths & Weaknesses
- Commonalities & Differences

ACIX



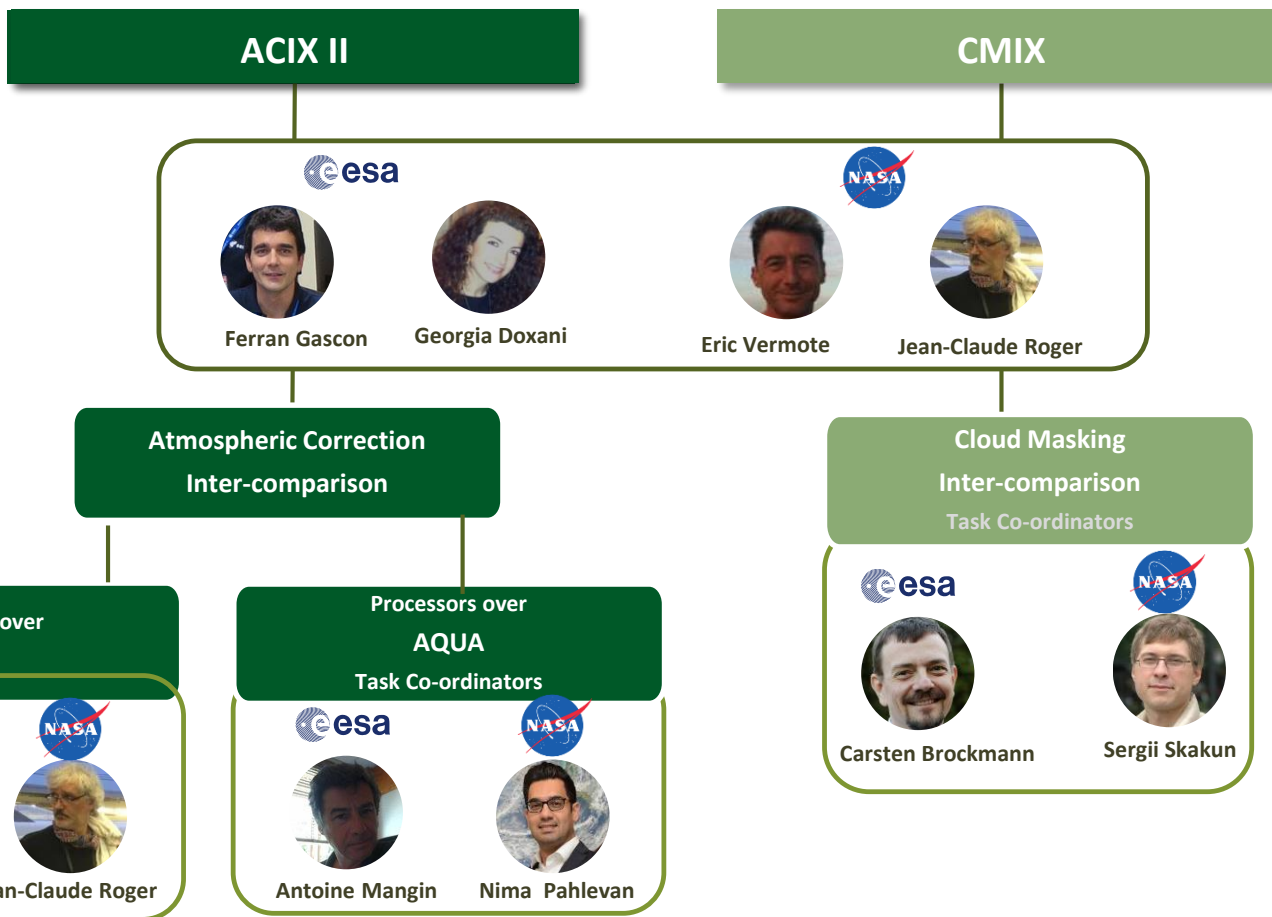


How?



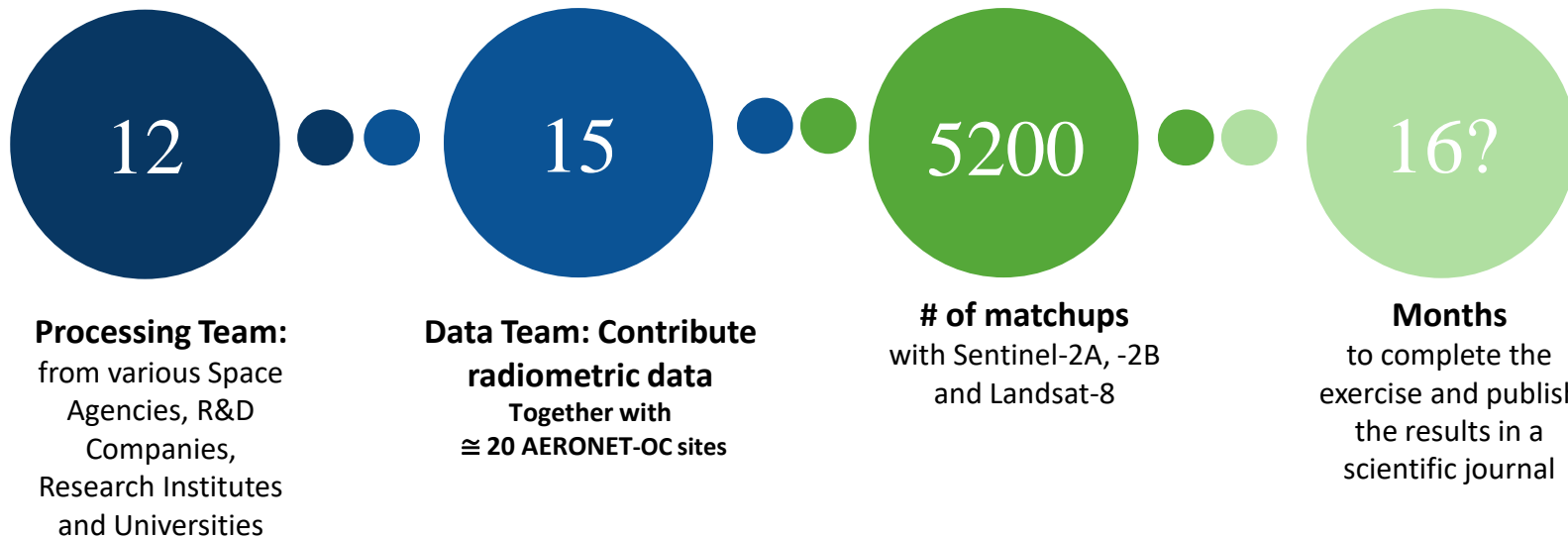
Performance analysis based on AOT products







How?

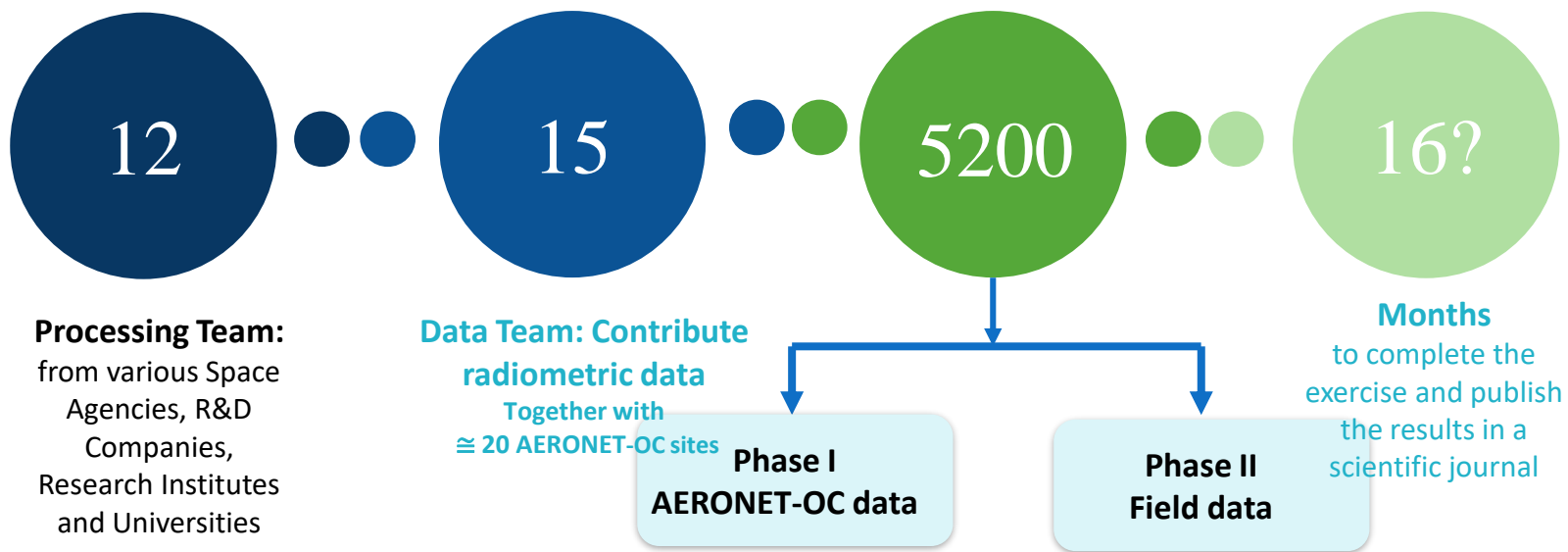


Performance analysis based on R_{rs} products





How?



Performance analysis based on R_{rs} products

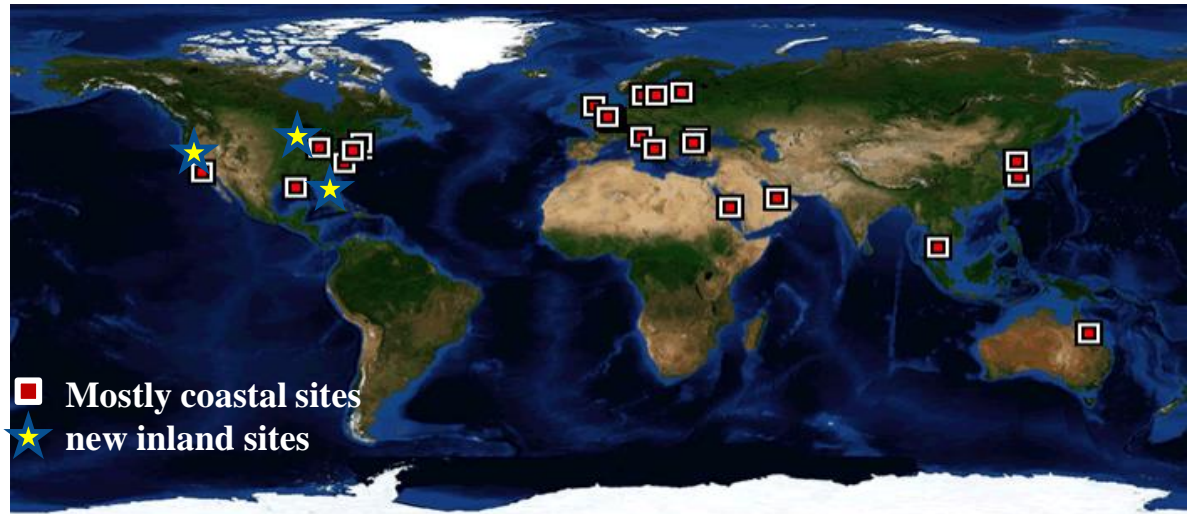




Phase I: Validation using AERONET-OC

~ 1260 matchups (including cloudy) provided

- 8 teams delivered processed subset images and uploaded on the platform (C-TEP) by March 15th 2019



Green Bay: Wisconsin DNR, UW Madison/Milwaukee, New Water
Lake Okeechobee: Florida Atlantic University, South Florida Water Management District
Grizzly Bay: United States Geological Survey, California Water Science Center

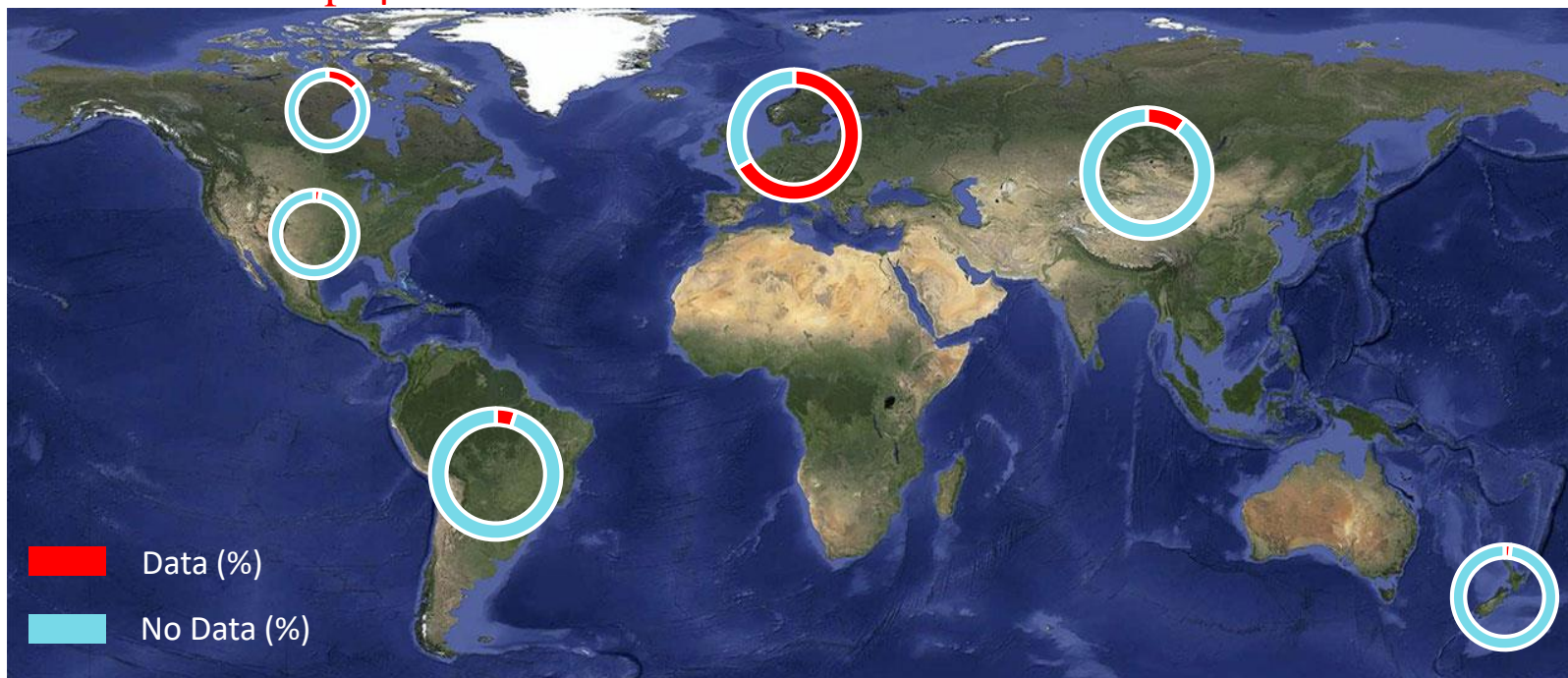
Chesapeake Bay: Planned – exact location to be decided



Phase II: Validation using field data

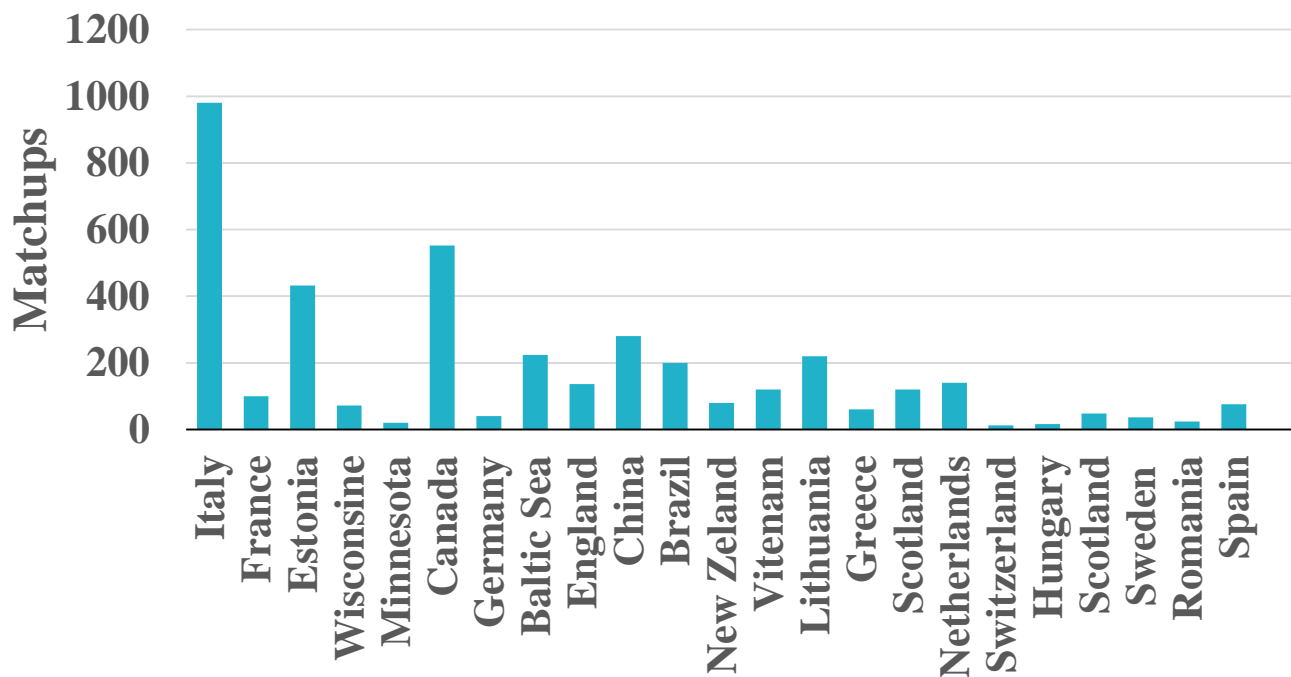


~ 4000 matchups provided



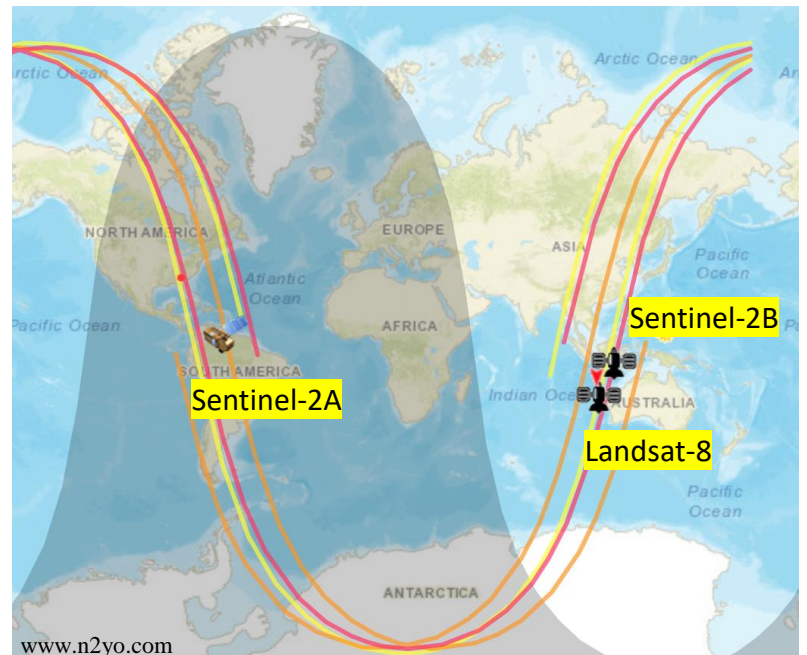
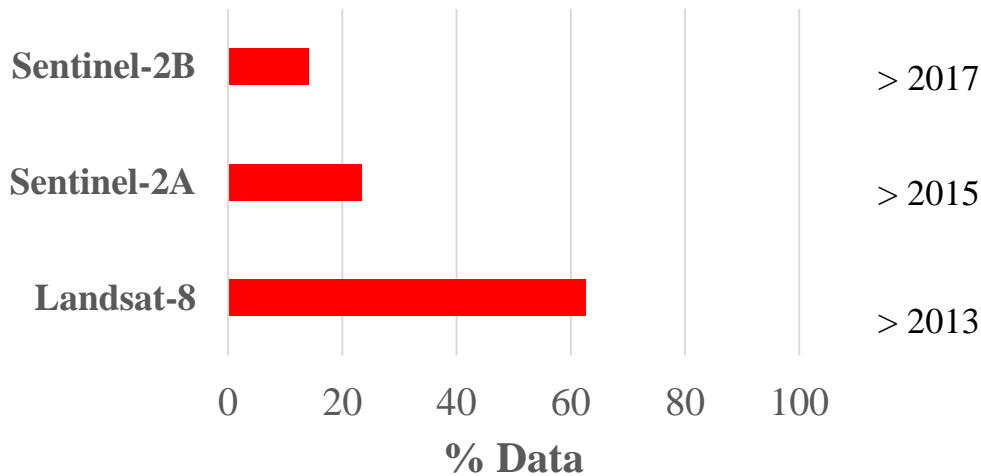


Phase II: Validation using field data





Landsat Vs. Sentinel-2





- Data Team

- Krista Alikas (Tartu Observatory; Estonia)
- Claudio Barbosa/Lino Augusto (Brazil)
- Caren Binding (ECCC; Canada)
- Ronghua Ma/Zhigang Cao (NIGLAS;China)
- Claudia Giardino / Mariano Bresciani (CNR; Italy)
- Daniela Gurlin (Wisconsin DNR)
- Yannick Huot/Simon Bélanger (Canada)
- Moritz Lehmann (U of Waikato; New Zealand)
- Nguyen Ha (VNU; Vietnam)
- Tristan Harmel (Géosciences Environnement Toulouse)
- Leif Olmanson (U of Minnesota; U.S.)
- Natascha Oppelt (U of Kiel; Germany)
- Steef Peters (Water Insight; Netherlands)
- Evangelos Spyrakos (U of Stirling; U.K.)
- Mark Warren (Plymouth Marine Laboratory, U.K.)

- Processing Team

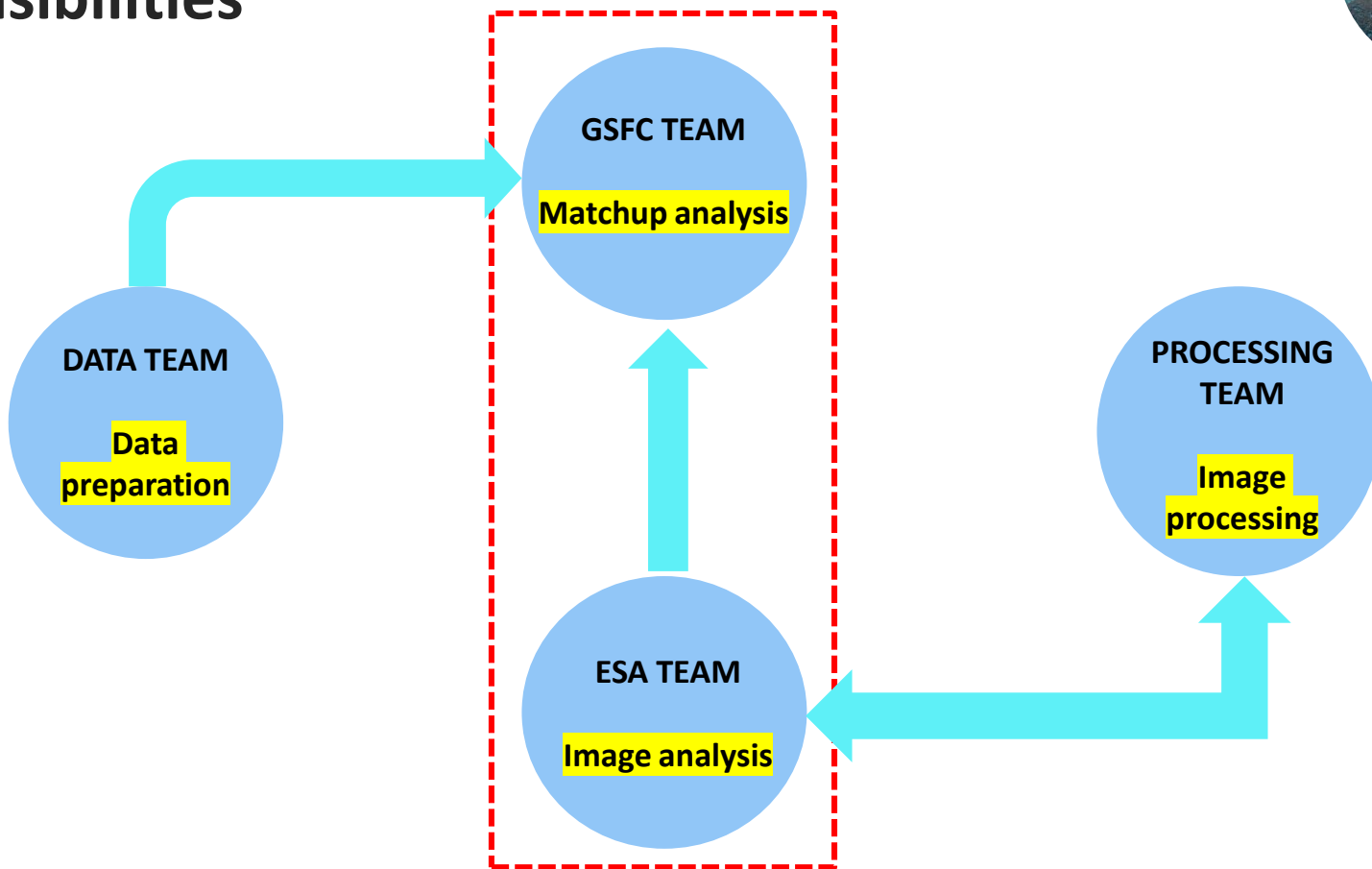
- Chuqun Chen (OECWAC)
- Yongzhen Fan (OCSMART)
- Tristan Harmel (GRS)
- Samantha Lavender (CASIDAS)
- Antoine Mangin (LAC)
- Benjamin Page (MAIN)
- Nima Pahlevan (SeaDAS)
- Bertrand Saulquin (MEETC2)
- François Steinmetz (POLYMER)
- Kerstin Stelzer (C2RCC)
- Quinten Vanhellemont (ACOLITE)
- Erwin Wolters (VITO)

- Support Team

- Sundarabalan Balasubramanian (NASA GSFC TEAM)
- Christophe Bevy (ESA /ACRI TEAM)



Responsibilities

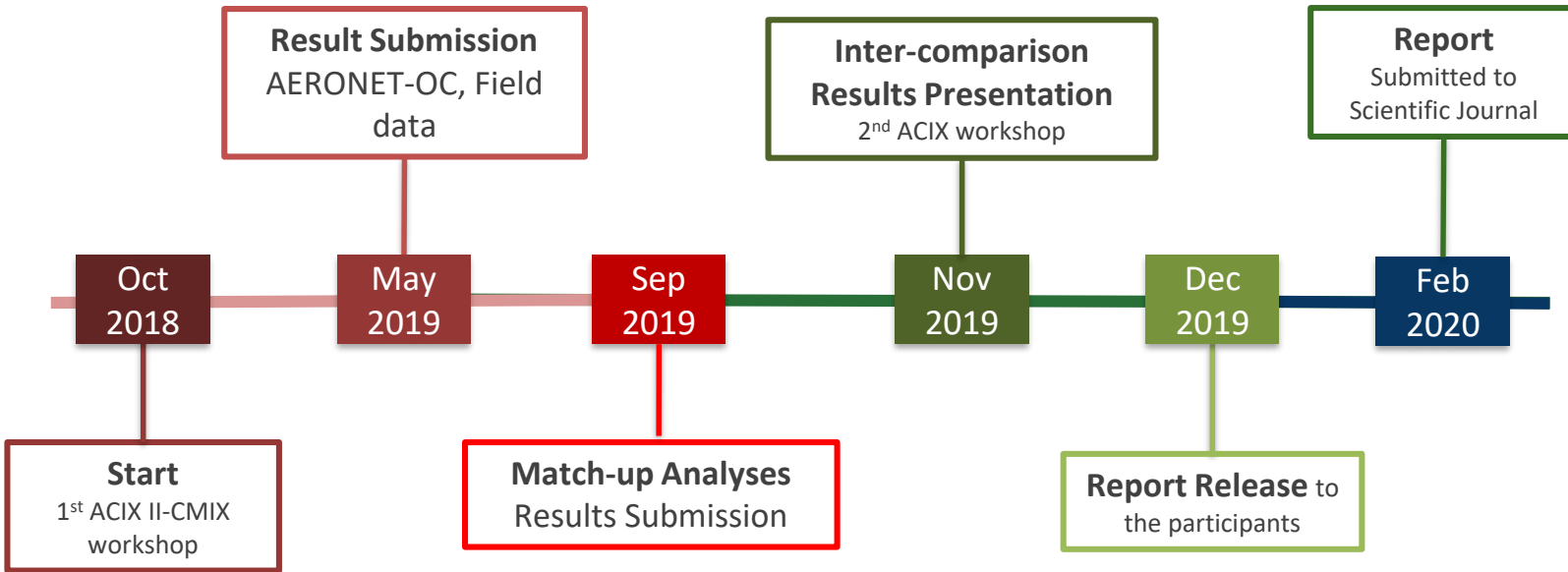


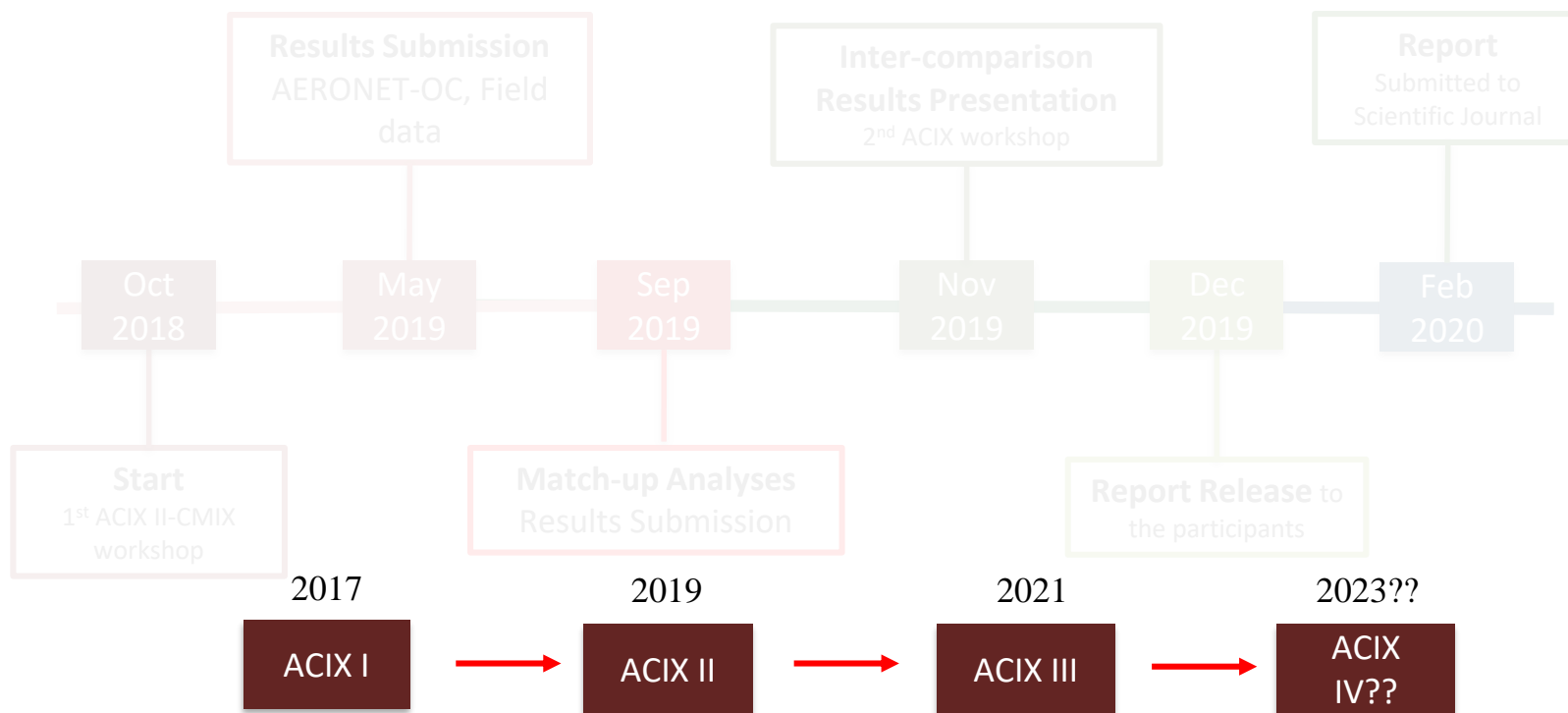
Reporting



- Performance metrics as a function of
 - Water type
 - Aerosol type
 - Surrounding landcover
 - Environmental conditions
 - Adjacency contamination
 - Imaging geometry
- Performance analyses for
 - Subset of high-fidelity matchups
 - The entire set
- Use Spider/Taylor diagram for the overall performance analyses









Data policy

- Radiometric data will not be shared outside of NASA GSFC team
- Data providers will be offered co-authorship on *any reports or manuscripts* using the radiometric data
- 1st report/manuscript (ACIX-II) will be submitted to RSE by Feb 2020
- MORE DATA NEEDED
 - Please contact if you want to contribute to ACIX-Aqua:
nima.Pahlevan@nasa.gov

