



Committee on Earth Observation Satellites

WildFire Pilot

Joshua Johnston, NRCan

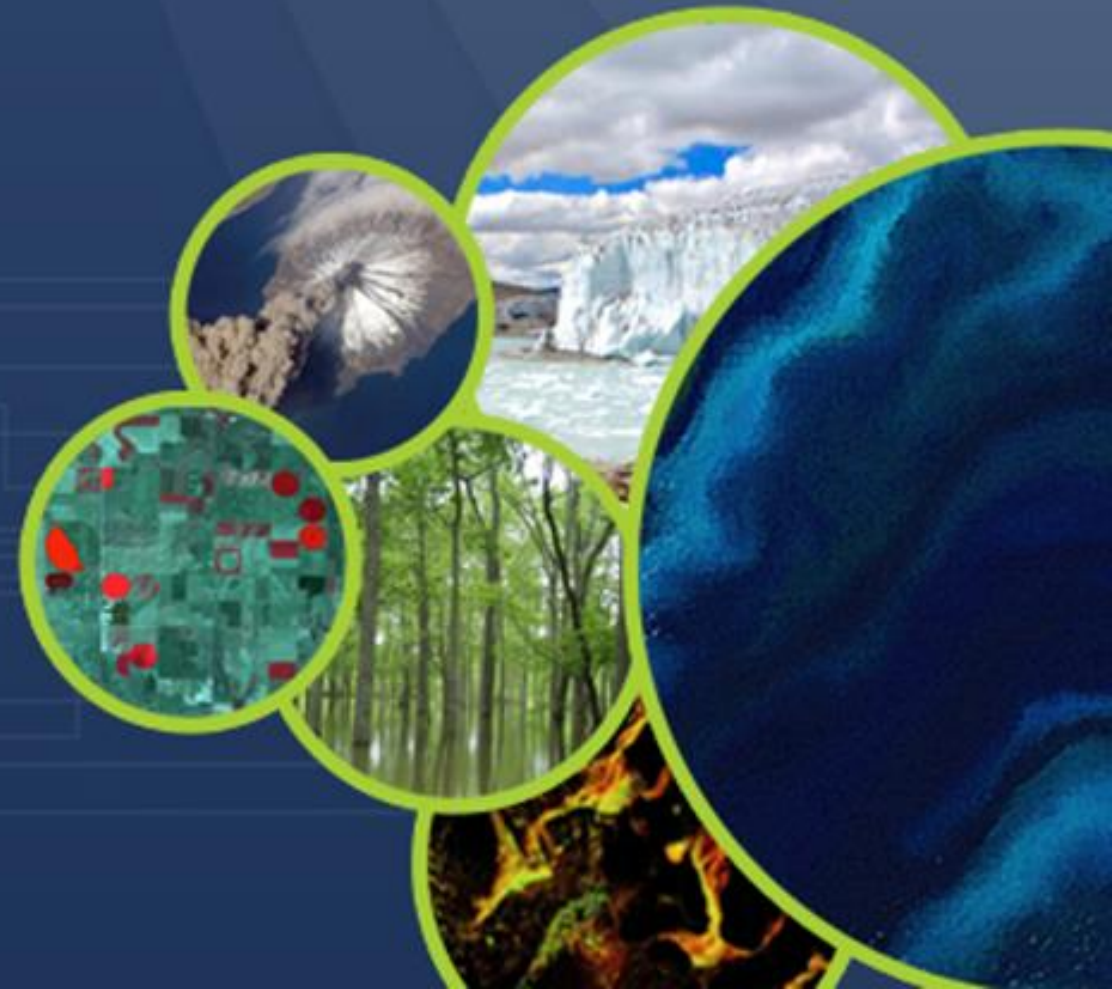
Helena van Mierlo, CSA

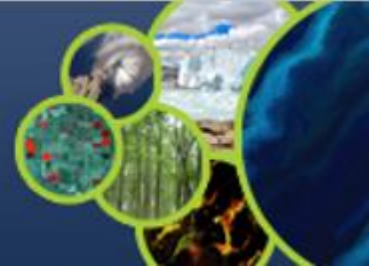
Peter Moore, UN FAO

Doug Morton, NASA

CEOS WG Disasters Meeting #15

March 9-11, 2021





Increased global wildfire activity

- Australia 2009, 2019/20; California 2018; South America 2019; Mediterranean/Greece 2018; Arctic 2019, Canada 2016, 2017, 2018

Wildfire EO for science, not operations

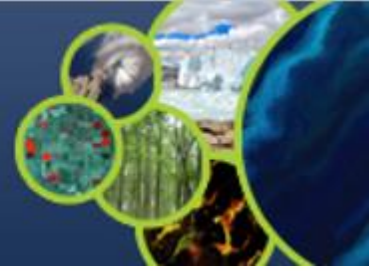
- No operational satellite systems designed explicitly for routine global wildfire monitoring

A coordination challenge

- Exploiting scientific systems for disaster response and management is problematic
- Lack of standardization in EO wildfire products means slow adoption rate

The way forward

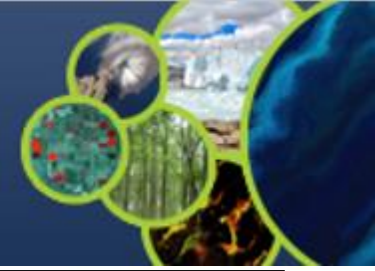
- Global coordination of the mid- and up-stream wildfire EO initiatives would enable maximum value to emergency management from EO systems and an efficient adaptation to the increasing threat of wildfires driven by climate change



Aim: to provide a fundamental basis for defining global priorities for active-fire monitoring and characterization.

Four specific Objectives:

1. Conduct a detailed inventory and gap analysis of existing and proposed EO systems suitable for global active-fire monitoring;
 - *Considering climate change driven fire regime changes and projected mission life spans*
2. Conduct a detailed analysis of global stakeholders and end-users of active-fire EO data;
 1. Define targeted user requirements for active-fire remote sensing systems for the disaster mitigation applications;
 1. Propose a way forward in coordinating global wildfire monitoring activities.



- Oct 14th, 2020: Scoping meeting
 - 44 members with broad global representation:
 - Australia, Canada, China, France, Germany, Greece, India, Italy, Jamaica, Mexico, Russia, UK, USA
 - Numerous state and international agencies represented

- Nov 25th, 2020: Telecon-28
 - Notional Implementation Plan described

- March 1st, 2021: Implementation plan submitted
 - IP developed by leadership team was submitted for consideration to Dave Borges.

First Name	Last Name	Organization	Country
Vince	Ambrosia	NASA	United States
Stefania	Amici	INGV	Italy
Olivier	Arino	ESA	
Philippe	Bally	ESA	
Bimal	Bhattacharya	ISRO	India
Reece	Biddiscombe	ASA	Australia
David	Borges	NASA	United States
Alan	Cantin	NRCAN	Canada
Allison	Craddock	NASA JPL	United States
Ivan	Csiszar	NOAA	United States
Didier	Davignon	NRCAN	Canada
Pierric	Ferrier	CNES	France
Christian	Fischer	DLR	Germany
Louis	Giglio	UMD	United States
Adrian	Guzman Gonzalez	AEM	Mexico
Alex	Held	CSIRO	Australia
Everett	Hinkley	USDA	United States
David	Hodgson	Ordinal Survey	United Kingdom
Ken	Holmlund	WMO	
Dan	Johnston	NRCAN	Canada
Joshua	Johnston	NRCAN	Canada
Sebastian	Kleim	DLR	Germany
Haris	Kontoos	National Observatory Athens (NOA)	Greece
Andrey	Kuklin	Roscosmos	Russia
Agnes	Lane	AU BOM	Australia
Simone	Lloyd	UN GGIM WG-Disasters	Jamaica
Antonio	Montuori	ASI	Italy
Peter	Moore	Forestry Officer, FAO	Italy
Doug	Morton	NASA	United States
Norman	Muller	GA	Australia
Dorella	Papadopoulou	ARGANS (ESA)	France
Amy	Parker	CSIRO	Australia
Mike	Pavolonis	NOAA	United States
Stuart	Phinn	UQ	Australia
Ellen	Ramirez	NOAA	United States
GS	Rao	ISRO	India
Arijit	Roy	ISRO	India
Wilfrid	Schroeder	NOAA	United States
Daniel	Thompson	CFS	Canada
Helena	van Mierlo	CSA	Canada
Jean Paul	Vernier	NASA	United States
Martin	Wooster	King's College London	United Kingdom
Weiyuan	Yao	Chinese Academy of Sciences (CAS)	China
Marta	Yebra	Australian National University	Australia
Robert	Ziehl	UAF	United States



Phase 1

2021-2023

O1:
EO inventory/Gap Analysis

O2:
Stakeholder/User Analysis

Phase 2

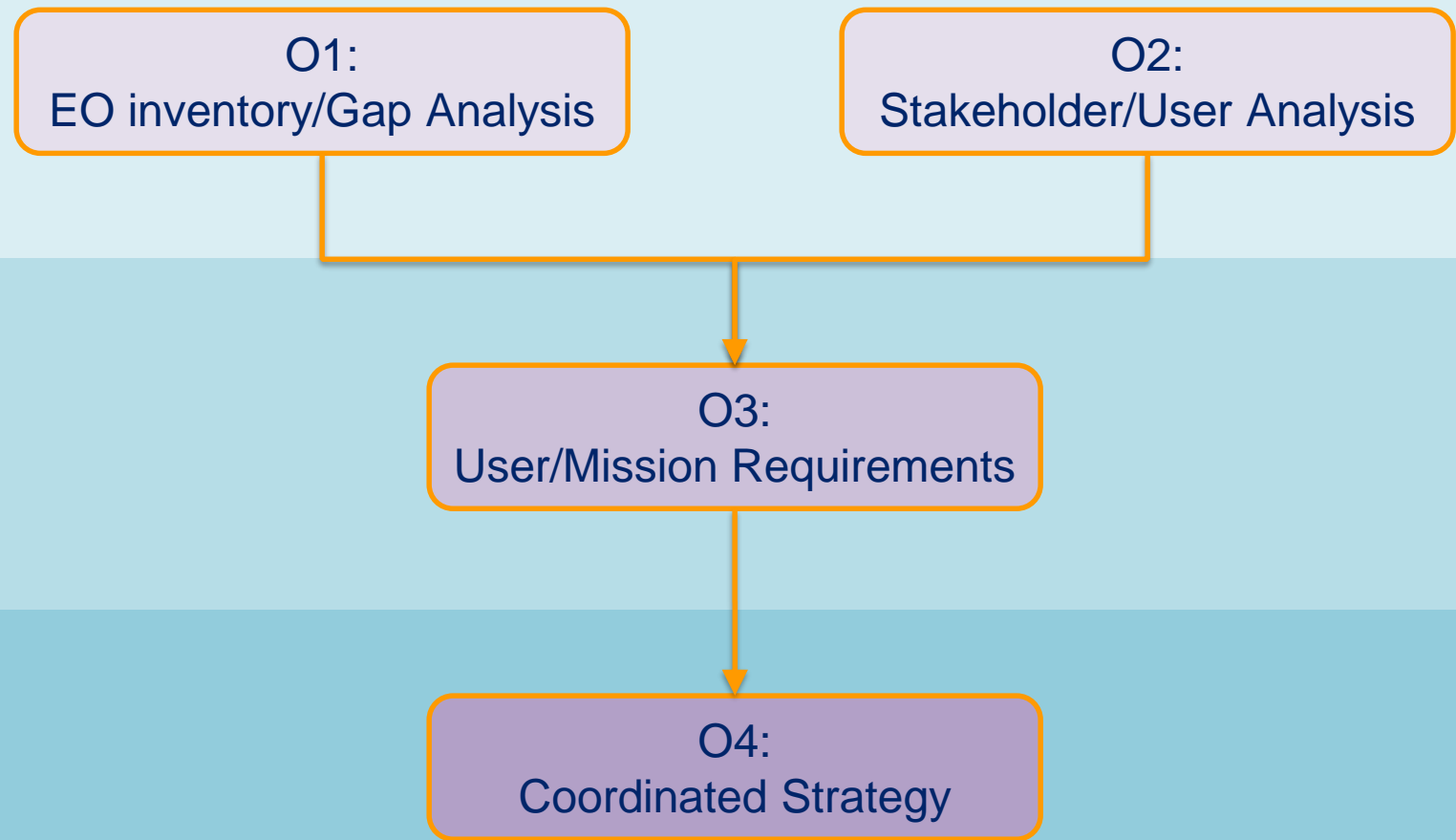
2022-2023

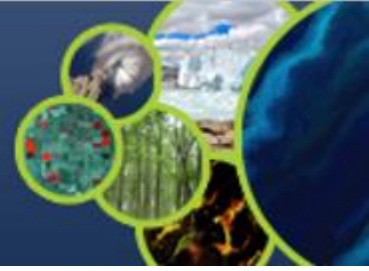
O3:
User/Mission Requirements

Phase 3

2023-2024

O4:
Coordinated Strategy



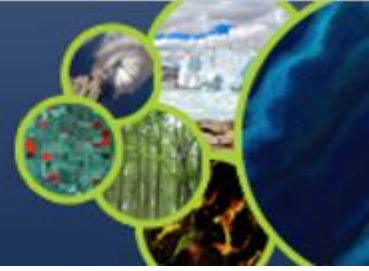


Objective 1:

- Assemble datasets to form a spatial and temporal global fire regime dataset with climate change projections on 5 year intervals (2020-2050)
- Identify existing and future active fire EO capabilities and coverage areas
- Map existing EO coverage and future projections on 5 year intervals
- Develop metrics for analysing fire regime and EO capability change correlations

Objective 2:

- Outreach to regional networks and partners to identify stakeholders and end-user communities
- Engage end-users (directly or through regional partners) to identify:
 - Agency responsibilities, priorities and perceive challenges in the future
 - User sophistication level (i.e. level of training, agency capacity/policy)
 - Current level of use and use cases



Objective 1:

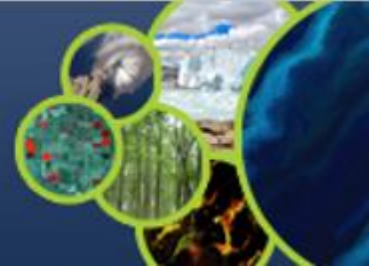
- Finalize scientific analysis, peer-reviewed publications

Objective 2:

- Document regional end-user capacity and requirements for EO and HQP development
- Develop a global knowledge exchange strategy to advance end-user up take of active wildfire EO data

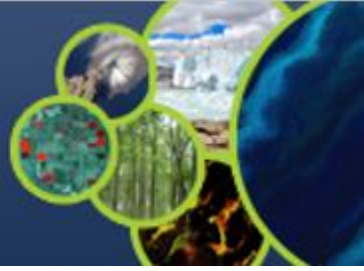
Objective 3:

- Identify mission profiles (GEO, LEO, HEO) required to address gaps in Objective 1
- Link the mission profiles to the primary end-user group and their respective priorities, based on the spatial temporal location of identified gaps
- Draft User and Mission Requirements for the mission profiles



Objective 4:

- Merge outputs of Objectives 1-3 into a strategic plan for adapting wildfire EO to mitigate the evolving risk of disasters under climate change
 - Objective 1 – current and future gaps and associated risks
 - Objective 2 – regional end-users at risk of the consequences of Objective 1, and framework for regional targeted engagement
 - Objective 3 – user and mission requirements to guide the development of EO systems to address these gaps
 - A proposed timeline for new systems development, outreach and primary stakeholders at each stage



- Seeking Implementation Plan endorsement from CEOS leadership: ~ March 22, 2021
- General meeting to discuss member contributions (April, 2021)
- Initiation of Objectives 1 and 2 to begin April, 2021 (staffing underway)
- Outreach activities were planned for WFC-2021, but delayed due to COVID **other options being considered*