Wildfire Subgroup: Workplan & ARD Discussion



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Agenda Items 6.1 & 6.5
LSI-VC-20 Meeting
15-16 September 2026

CEOS Committee on Earth Observation Satellites

Wildfire Subgroup Status

- Now 16 organisations engaged with the subgroup
  - 12 CEOS members
  - 2 commercial / non-profit
- Two subgroup meetings (May, July) since formation in April
  - Next meeting: 7th October
  - additional meetings for individual activities TBD
- Wildfire subgroup Terms of Reference finalised
- Narrowing down subgroup priorities

LSI-VC Wildfire Subgroup Organizations
Co-leads
European Space Agency
South African National Space Agency
Canadian Space Agency
Natural Resources Canada
Participating CEOS Agency Members
European Commission
EUMETSAT
Hellenic Space Centre
National Institute for Space Research (INPE, Brazil)
NASA
NOAA
UK Space Agency
United States Geological Survey
Wider Community
GOFC-GOLD FireIT
FireSat
Ororatech
National Physical Laboratory (NPL; UK)

Workplan priorities

1) Support development of CEOS-ARD PFS for fire products

2) Work towards best practice guidelines / endorsement process for fire monitoring products

3) Support field validation of fire products through coordination & facilitation of collaborative validation activities (ongoing activity)

4) Fire monitoring mission continuity tracking: Wildfire portal & subgroup member meeting updates (ongoing activity)

CEOS-ARD PFS for fire

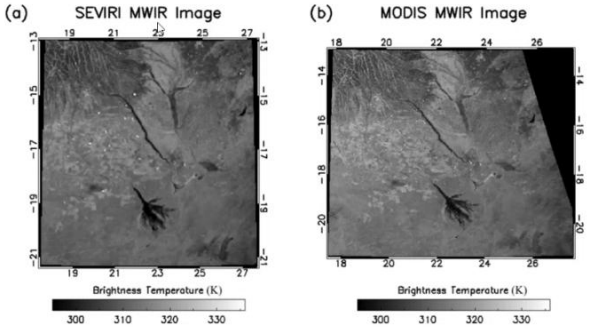
- Active fire products – SWIR/MWIR & LWIR inputs

- Burned area products – primarily NIR-SWIR inputs
  - Can be supported by active fire locations (e.g. MODIS MCD64)

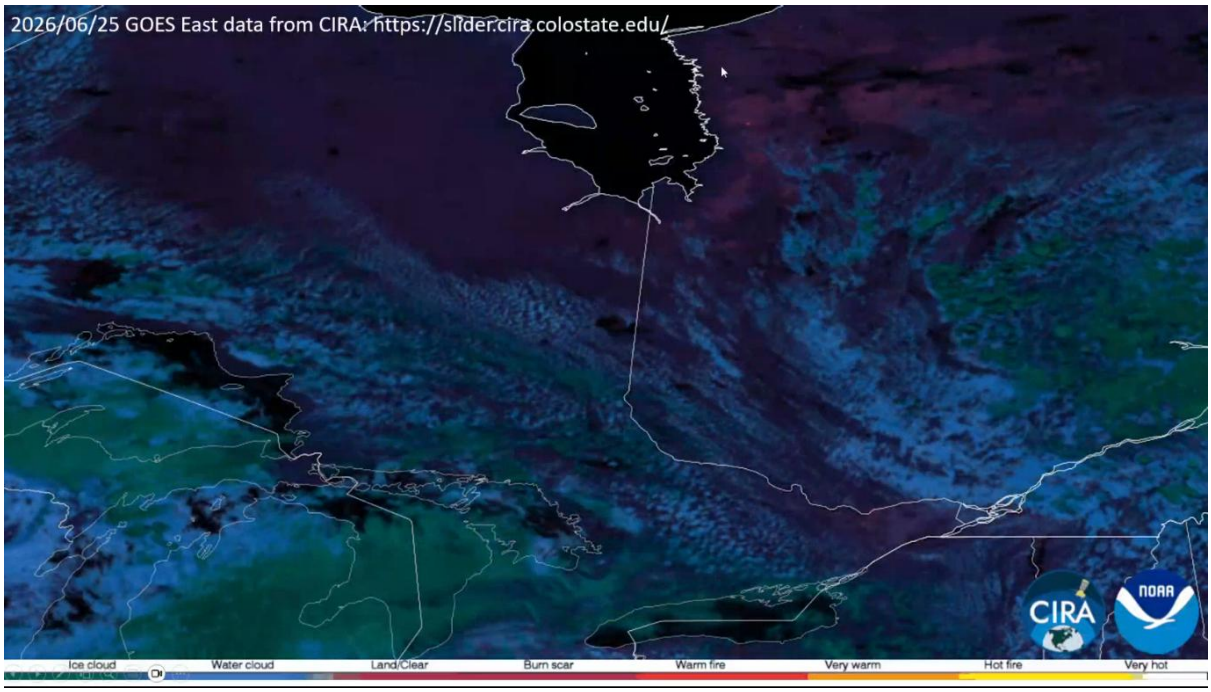
- Likely use surface temperature and reflectance PFS as jumping off point for fire PFS

EO based active fire monitoring

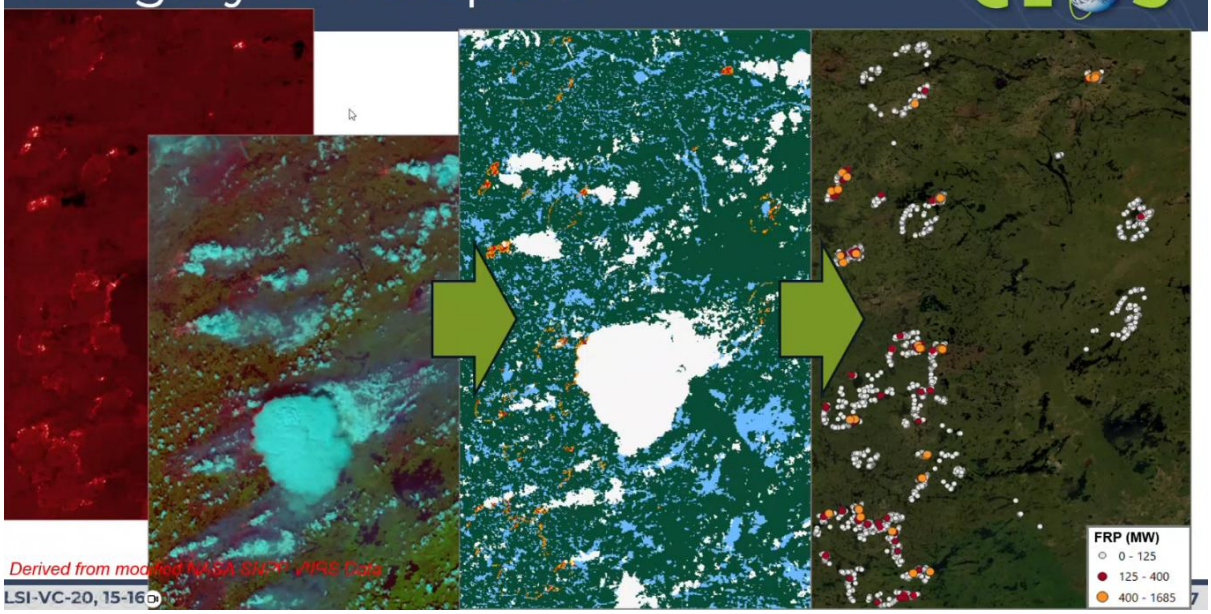
- Fires (600-1200 K) emit strongly in the **mid & short-wave infrared** and are easily identifiable against an ambient temperature background (~300 K)
- Possible to detect **extremely subpixel** fire events (< 0.01 % pixel area)
- Detection and monitoring feasible with **relatively coarse (1-4km) resolution instruments** (e.g. AVHRR, MODIS, GOES, SEVIRI)



Actively burning fires observed in near simultaneous MWIR imagery from (a) MSG SEVIRI and (b) MODIS over Southern Africa, 17th August 2007 (Wooster et al. 2015)

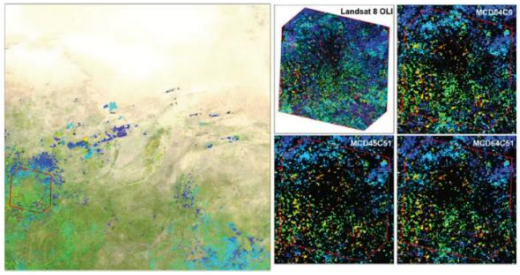


Imagery to hotspots



Burned area

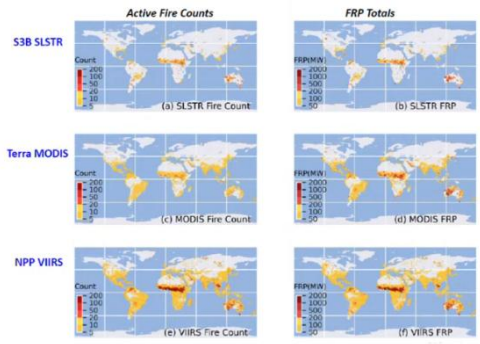
- Burn scars typically have low NIR, elevated SWIR vs. unburned vegetation
- Timeseries approach: changes in NIR-SWIR indices over time to:
  - Identify burned/unburned pixels
  - Estimated date of burn + uncertainty



Spatial patterns of burned area from MODIS and Landsat, Mali, 2013/14, coloured by date of burn
Giglio et al 2018 https://doi.org/10.1016/j.rse.2018.08.005

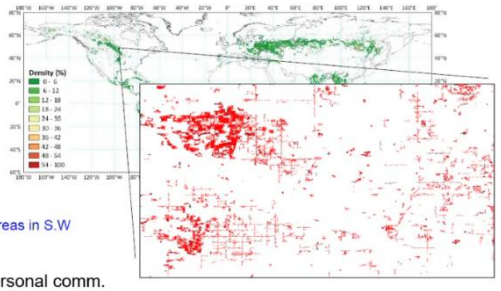
ARD vs. endorsement?

- ARD is about making sure data are **easy and consistent to use**
- Endorsement / best practice is about making sure data are **fit for purpose**



M. Wooster, personal comm.

Published Google Earth Engine Landsat-8 burned area product looks good at this scale



30m burned areas in S.W Minnesota ?!

D. Roy., personal comm.

Limited agreement between fire products, and some products have **quality issues**