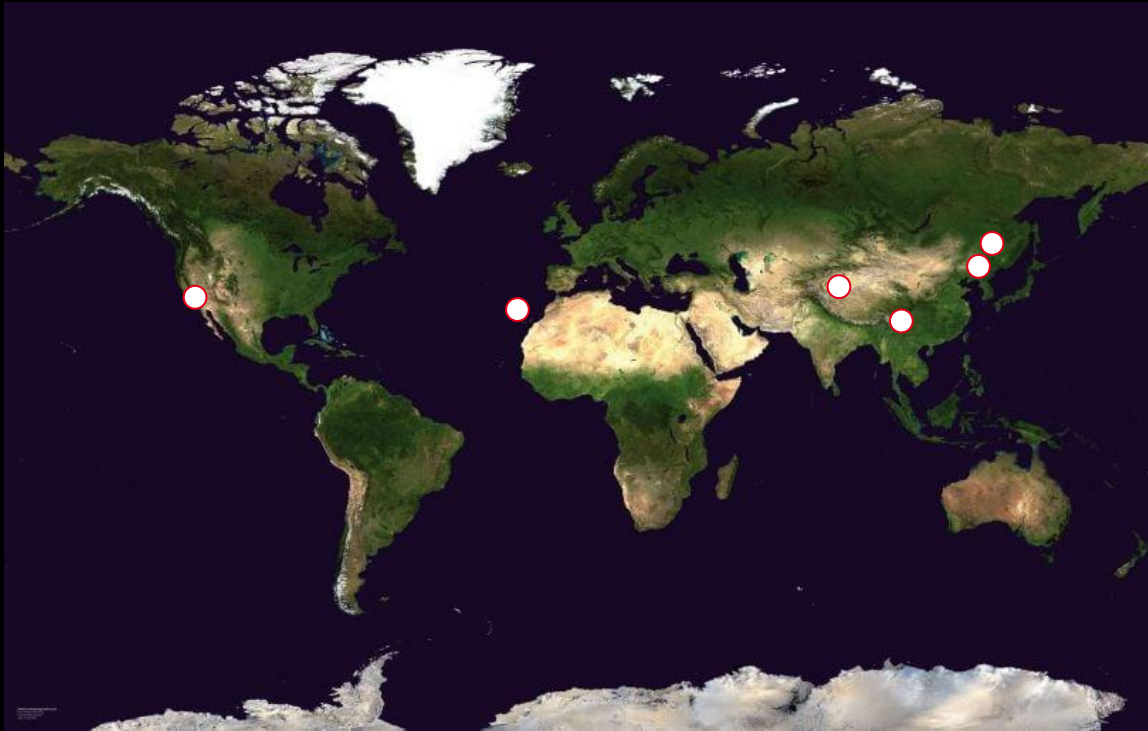


# Taking into account data of external origin

*the case of a "standard" follow-up (e.g. radio to X-rays)*

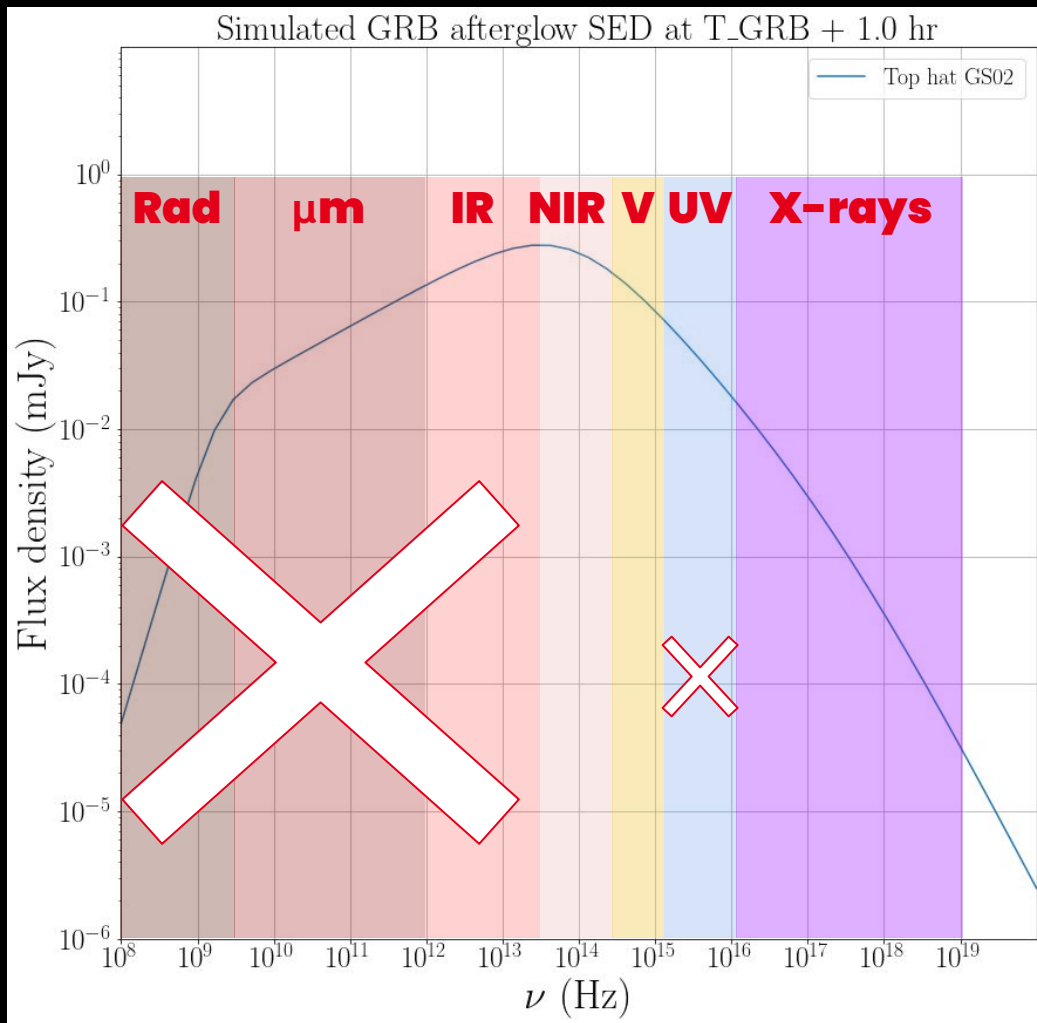
# The SVOM follow-up limitations



## Some important limitations for having a homogeneous follow-up

1. longitude and latitude limited coverage especially in the Southern hemisphere which restrict our prompt follow-up responses
2. Seasonal and highly variable weather conditions in the different sites
3. Technical difficulties with the instruments
4. Limited in wavelengths coverage especially in NIR, submm and radio (BVRI, grizy JH)
5. MXT limited sensitivity for late time afterglow observation (jet break signatures, late rebrightening, etc.)

# The SVOM follow-up limitations vs the multi-wavelength evolution of the GRB afterglows



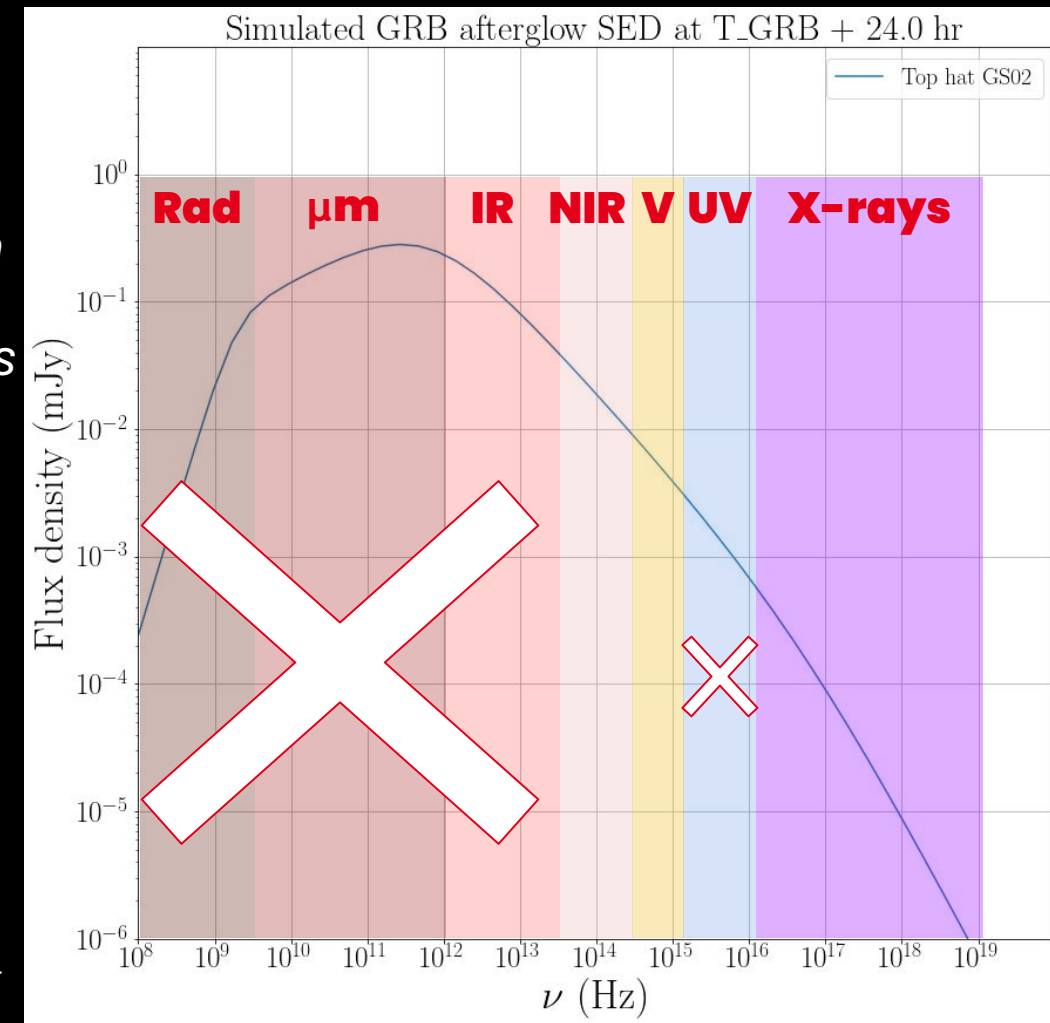
*Multi wavelength coverage with different latencies is needed*

**BUT**

*not always covered by the SVOM facilities*

**X**

*Not covered by the current SVOM follow-up facilities*



# The existing solutions to complement our follow-up data set

A good overview of the optical counterpart behavior as observed by external teams

Einstein Probe,  
Insight-HXMT,  
Swift/XRT & UVOT  
Chandra?  
XMM-Newton?

**01**

**SVOM Partners**

Associate partners,  
Purchase of time,  
collab. with  
open-time facilities  
(<https://forge.in2p3.fr/projects/grb-follow-up/wiki>)

**02**

**GCN Circulars**

**03**

**Optical Surveys**

ZTF/LSST/ATLAS with  
"public" data (live  
stream or archive)

**04**

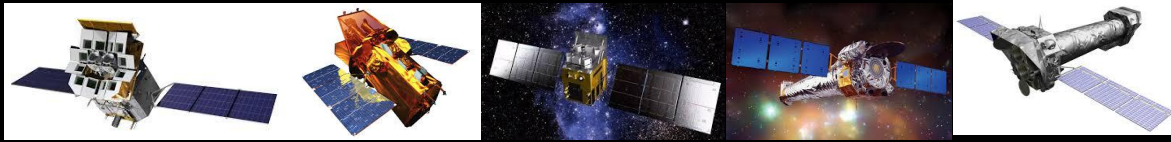
**Space  
instrument  
synergies**

**05**

**Catalog data**

To identify a  
potential host and its  
contribution to the  
optical/NIR flux

# The SVOM follow-up system complemented with external data



Multiple partnerships to obtain an homogeneous follow-up coverage



- SVOM facilities
- Associate & official Partners
- LCOGT

1. Bridge the gaps between the obs. location
2. Less dependent of local weather conditions
3. Less dependent of technical issues
4. Consolidate the optical wavelength coverage and extend up to radio/submm
5. Extend our x-ray sensitivity for the late time afterglow emission (AND possibly get prompt x-ray data with Einstein probe prior to MXT)

# Caveat and food for discussion

**01**

**SVOM Partners**

The photometry maybe inaccurate...  
Need to contact the telescope teams.  
Who is in charge?

**02**

**GCN Circulars**

**03**

**Optical Surveys**

Who has the expertise and the contacts if needed?  
Is Xspec enough to combine the data?

**04**

**Space instrument synergies**

**05**

**Catalog data**

How to we collect the follow-up data?  
Which can of data do we retrieve (image, photometry, 1D/2D spec, etc.)? Do we plan to have a standard format ?

How to get a quick access to these data? Who can have access to these live streams or archives?

Need to identify the relevant catalogs and the associate tools to extract the photometric/redshift information

# Issues to overcome when merging the data from external facilities

- Talk with the same flux (flux density) unit from radio to x-rays
- Where do we collect the data which can not be directly inserted into SDB? In which format (should be standardize)?
- Do all the CO-Is have access to all the data set (including those outside the SDB) or are they restricted to PI proposals or contact persons in external collab? The rule should be clearly specified for each partner -> <https://forge.in2p3.fr/projects/grb-follow-up/wiki>
- **At optical wavelengths:** get data from similar photometric systems (filters, AB vs Vega mag) or get conversion tools to uniformize the data set
- **For x-ray data coming from external facilities:** flux conversions into the MXT pass band for a direct comparison.
- **Radio data:** do we have expertise in the Collab. to process radio data or do we only rely on external Collab.?
- **About modelling tools:** Use of Xspec for simple broadband model fit or your own tool with available analytical models. Can we list the available afterglow/SN/KN models?
- A quick look visualisation tool might be useful to see the complete SVOM+external data set (light curve and observation table visualisation). Might help to quickly see if a given GRB exhibit non-standard features ? Maybe in the SVOM public server?