A. Claret, on behalf the FSGS team and BA working group

Burst advocates and Science Centres

SVOM BA workshop @ Les Houches 16-20 May 2022

Burst Advocates and Science Centres

Agenda

1. Background information

   - Science centres

   - French/Chinese agreement on BA-tools

2. Burst advocate role

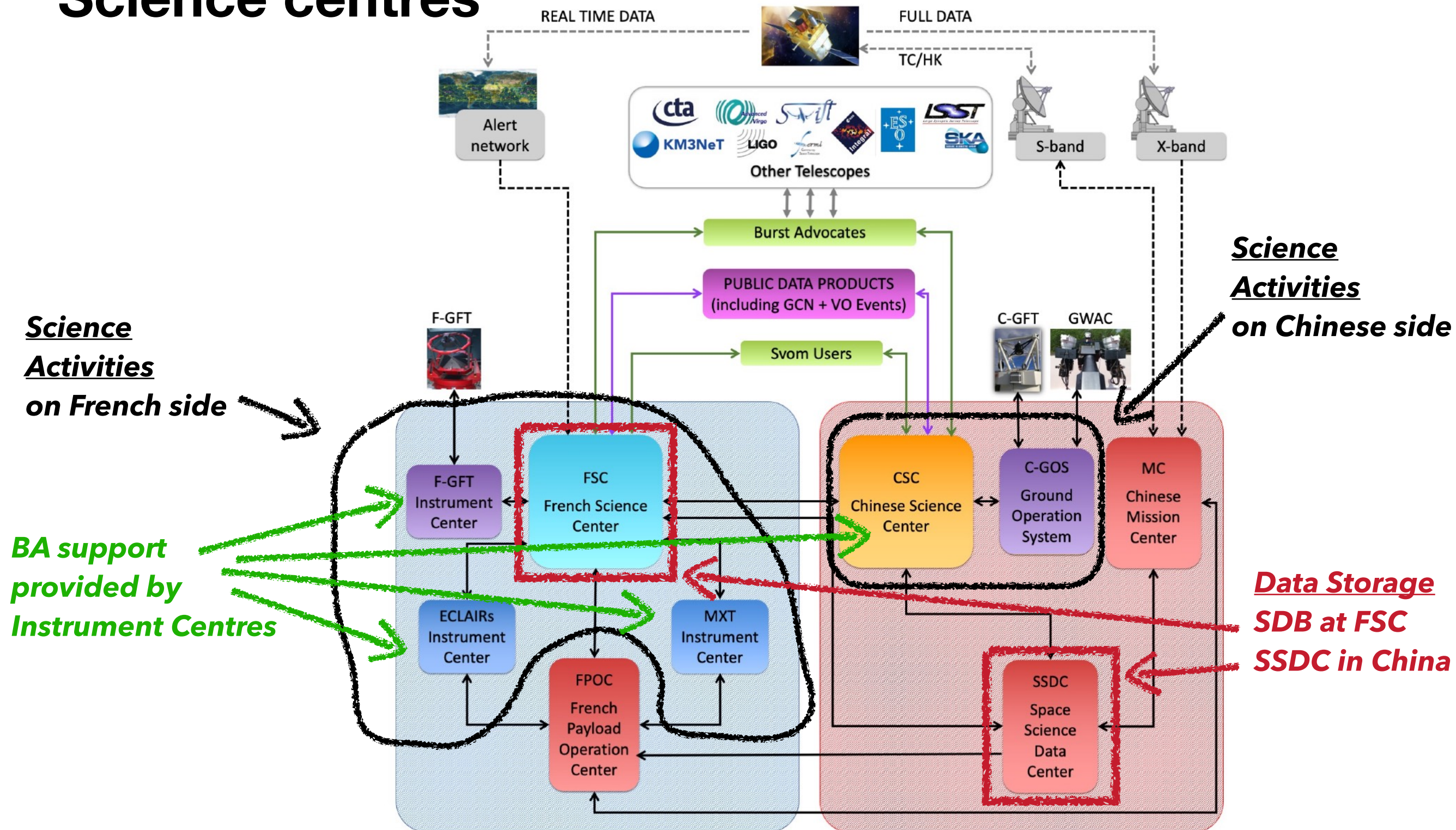   - What are they supposed to do?

   - With who? Where? When?

3. Working plan

   - What remains to be done?

   - Issues and priorities

   - Open points

Background information
Science centres

Background information
French-Chinese agreement for BA-tools

IAP workshop (end 2019)

✴ French side (iFSC-Tools) is in charge of high-energy validation tools and display tools, including VHF and X-band data

✴ Chinese side (CSC BA-Tools) is in charge of the optical validation tools and display tools, including VHF, X-band and ground data

This may seem a bit confusing at first reading, but not so much, because in practice:

‣ iFSC-tools allows the Instrument Scientists to monitor and analyse all the French instrument data (ECLAIRs, MXT, **F-GFT**) ; it also includes **ECLGRM** products (managed by LUPM) as well as some **VT** products (those managed by GEPI)

‣ **Specificity of iFSC-tools:** allows monitoring the real time elaboration of scientific VHF products + well designed for the trigger validation (using high energy products and space weather)

‣ **Specificity of CSC BA tools:** allows the global identification of the afterglow taking into account all ground observations

Take home message

✴ Both BA-tools are complementary, and both of them will be used simultaneously by all BAs

Burst Advocate Role

Burst advocate role

What the BA is supposed to do?

Monitor key parameters of the Svom mission
BA-tools + Instrument Centers Web portals

BA writes GRB report

BA supervises notices N1 & N2

Follow-up with Robotics

BA validates N2f/Circular

BA publishes final circular
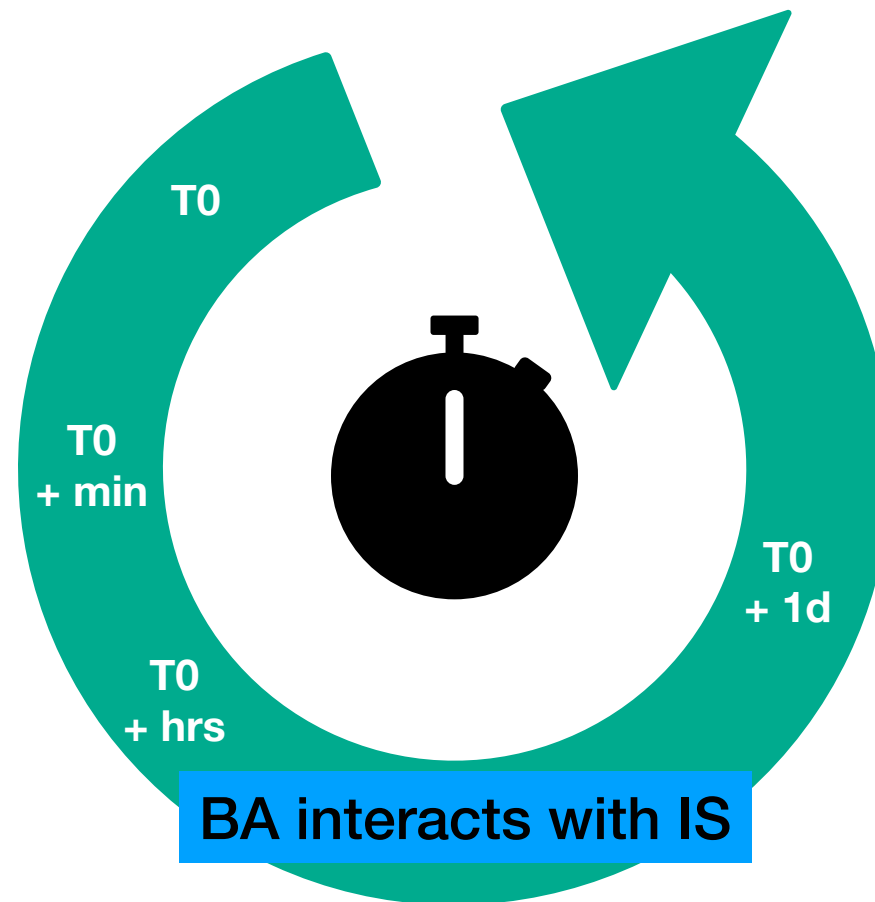
T0

T0 + min

T0 + 1d

T0 + hrs

Follow-up with Large Telescopes

BA validates the trigger

Videoconferencing (revisit, ToO)

BA interacts with IS

Supervise analysis of band X data products
ECLAIRs, GRM, ECLGRM, MXT, VT
BA+IS: notices N3 and Circulars

Burst advocate role
With the help of the support team

Based on Swift/Fermi/Integral feedback

✳The **Instrument Scientist (IS)** is an expert about data analysis (one for each instrument)

- generates and validates the final scientific products of the highest confidence level elaborated from X band data
- sends the circular relative to one instrument

✳The **Instrument Expert (IE)** has an engineering role (one for each instrument)

- reachable in case the BA faces something he does not understand about an instrument

Special add-on for Svom

✳The **BA-manager (or assistant)** provide local support to BAs (one support at each science center CSC/FSC)

- disseminates the knowledge necessary to unexperienced BA
- helps for coordination of follow-up observations
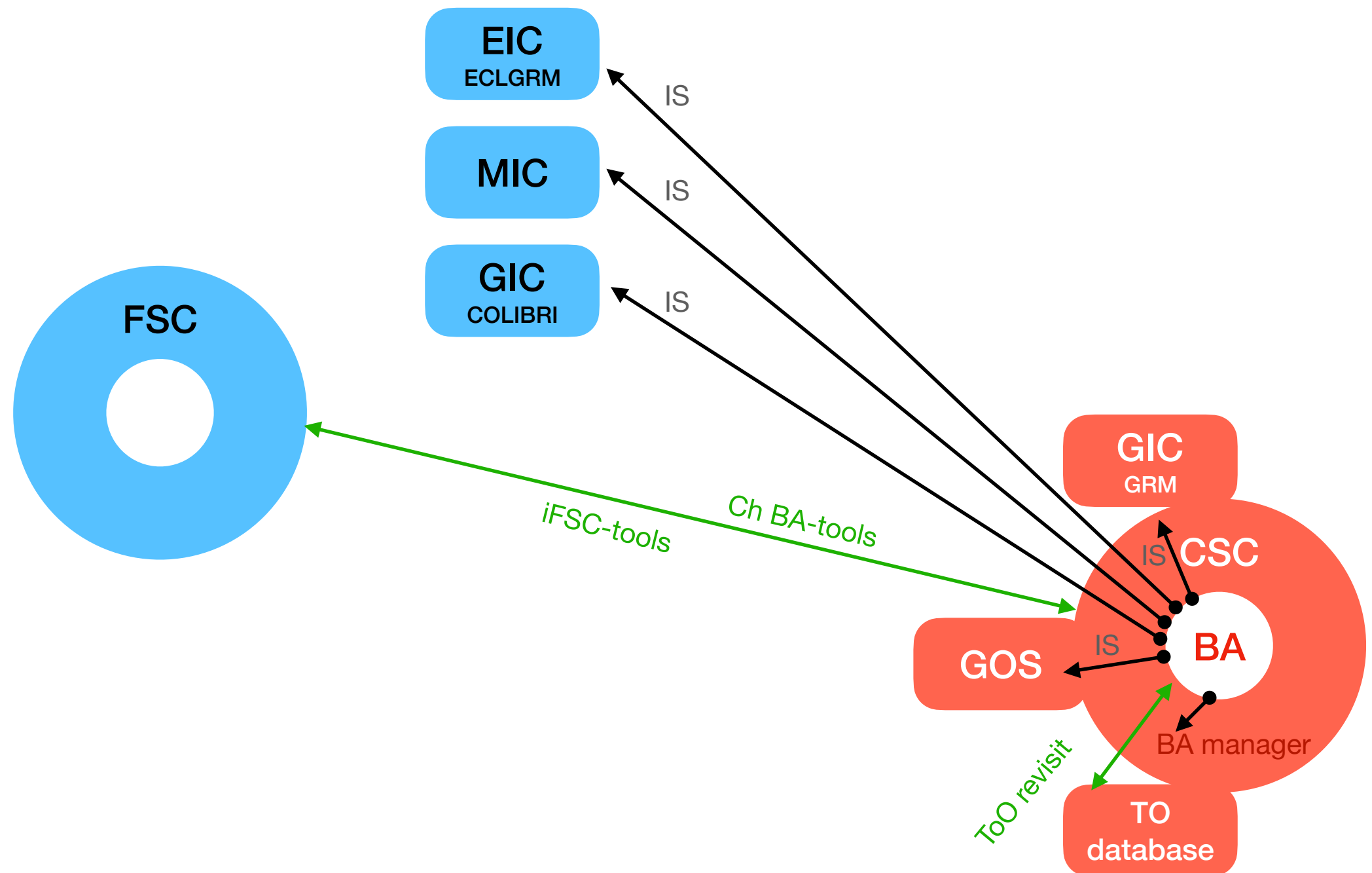
Burst advocate role

Interactions with French BA
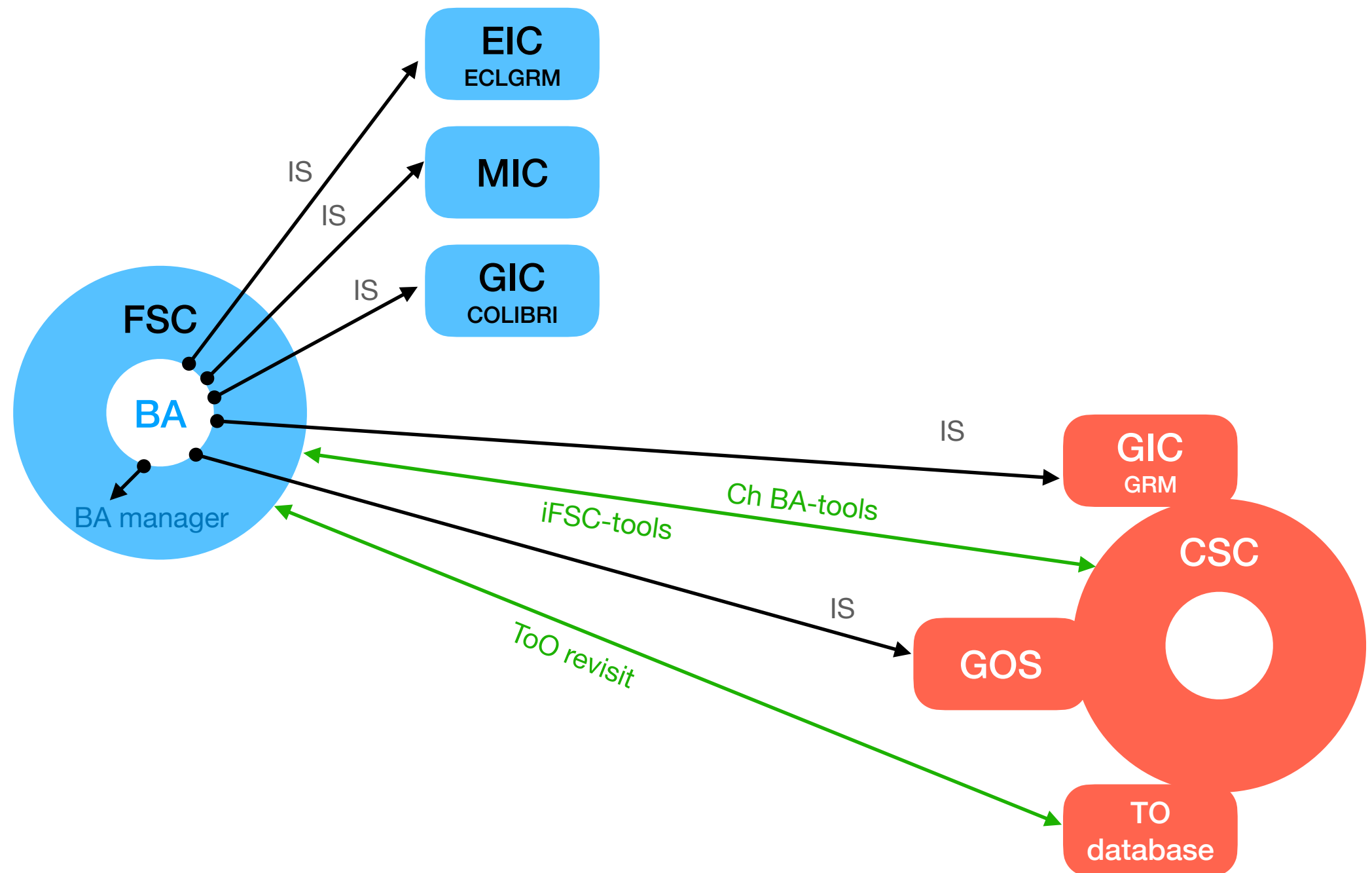
Burst advocate role

Interactions with Chinese BA

Burst advocate role
Interactions with Instrument Scientists

| Instrument	Data	Analysis	Delay
ECLAIRs	VHF	Automatic, supervised by the BA	no
GRM		Automatic, supervised by the BA	no
MXT		Automatic, supervised by the BA (the correction from VT attitude charts may require automatic check or BA validation before sending)	no
VT		Automatic, supervised by BA (the VT position or multiple afterglow candidates within the MXT error circle may require BA validation in case of low SNR)	no
ECLAIRs + ECLGRM	X-band	Could wait for day working time of the French-IS	< 6h (TBD) in any case
GRM		Could wait for day working time of the GRM-IS	< 6h (TBD) only for some difficult cases
MXT		Could wait for day working time of the French-IS (only if the VHF data analysis does not show special problems)	as short as possible in some cases (ECLAIRs trigger with low SNR)
VT		Shall be performed systematically by Chinese-IS	as short as possible in all cases
GFTs/GWAC	ground	Shall be performed systematically by IS of GFTs/GWAC	as short as possible in all cases

Burst advocate role

Which BA and IS for ground observations?

Current agreement for BA time sharing is 60% / 40%

‣ Chinese BA shift (14.5 hrs duration)

7:00 - 21:30 LT
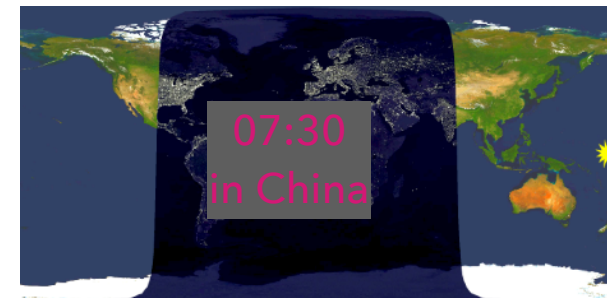
Chinese BA shift occurs when western telescopes are operating

‣ French BA shift (9.5 hrs duration)

15:30 - 01:00 LT

French BA shift occurs when eastern telescopes are operating

The knowledge and the access to the Chinese means of observation are essential for the French BA, and reciprocally
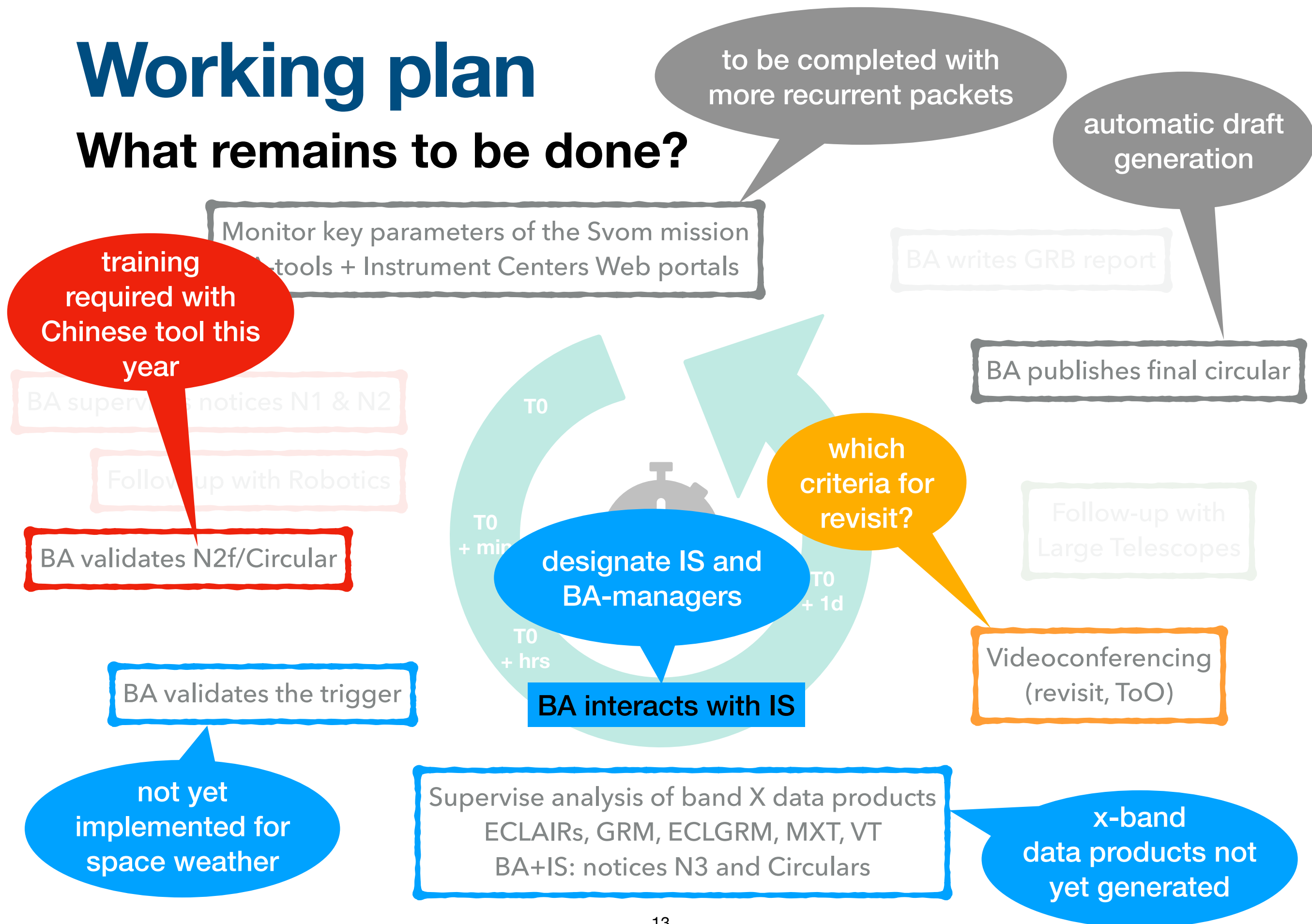
Note: for training with Swift alerts, we have agreed to have balanced shifts 50% / 50% (7:00-19:00 LT in China, 13:00-1:00 LT in France)

Working Plan

Working plan
What remains to be done?

to be completed with more recurrent packets

automatic draft generation

Monitor key parameters of the Svom mission ~~-tools~~ + Instrument Centers Web portals

BA writes GRB report

training required with Chinese tool this year

BA publishes final circular

BA supervises notices N1 & N2

Follow-up with Robotics

which criteria for revisit?

BA validates N2f/Circular

T0

T0 + min

designate IS and BA-managers

T0 + 1d

Follow-up with Large Telescopes

BA validates the trigger

T0 + hrs

BA interacts with IS

Videoconferencing (revisit, ToO)

not yet implemented for space weather

Supervise analysis of band X data products ECLAIRs, GRM, ECLGRM, MXT, VT BA+IS: notices N3 and Circulars

x-band data products not yet generated

Working plan

Issues and priorities (short list, not exhaustive)

- Adapt the displays according to the <u>feedback from recent tests</u>

- Implement diagnostics for <u>trigger validation</u> (statistics and counterpart are almost ok, but the space weather criteria are missing)

- **Practice the Chinese tool** as soon as available in order to acquire expertise in validating the afterglow candidates

- More complete simulations of scientific product to finalize the displays, **including X band data and ground telescope** science products

- **Organize tests** all along the year (shall be short and targeted tests)

- Write/update the **documentation** for BA

- Start to think about the list of BA, IS, BA-manager

Working plan
Open points

1. Criteria for **revisit decision**

2. Trigger below threshold

3. Offline trigger management

Thank you