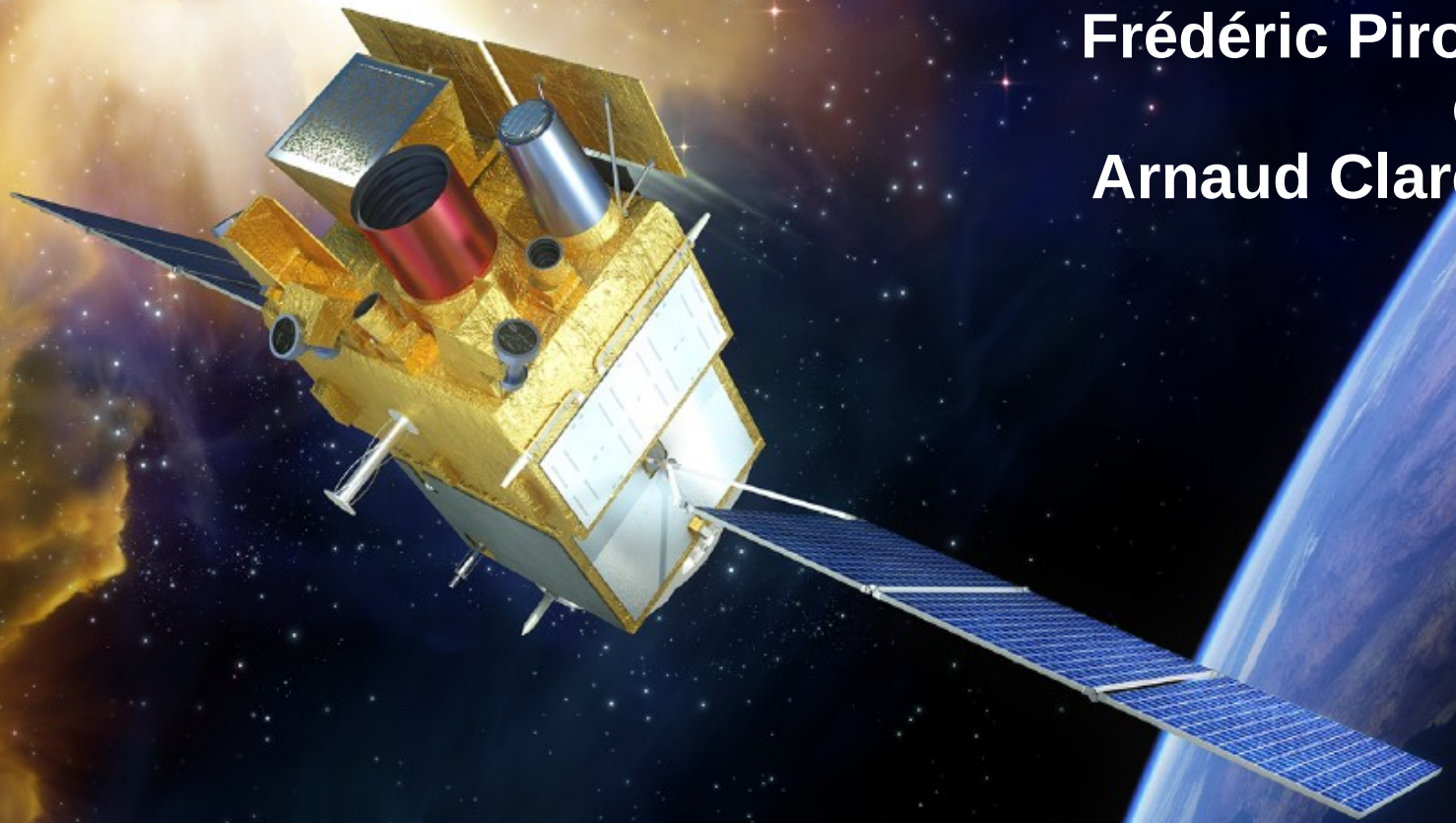
# SVOM : organisation de l'exploitation scientifique en France



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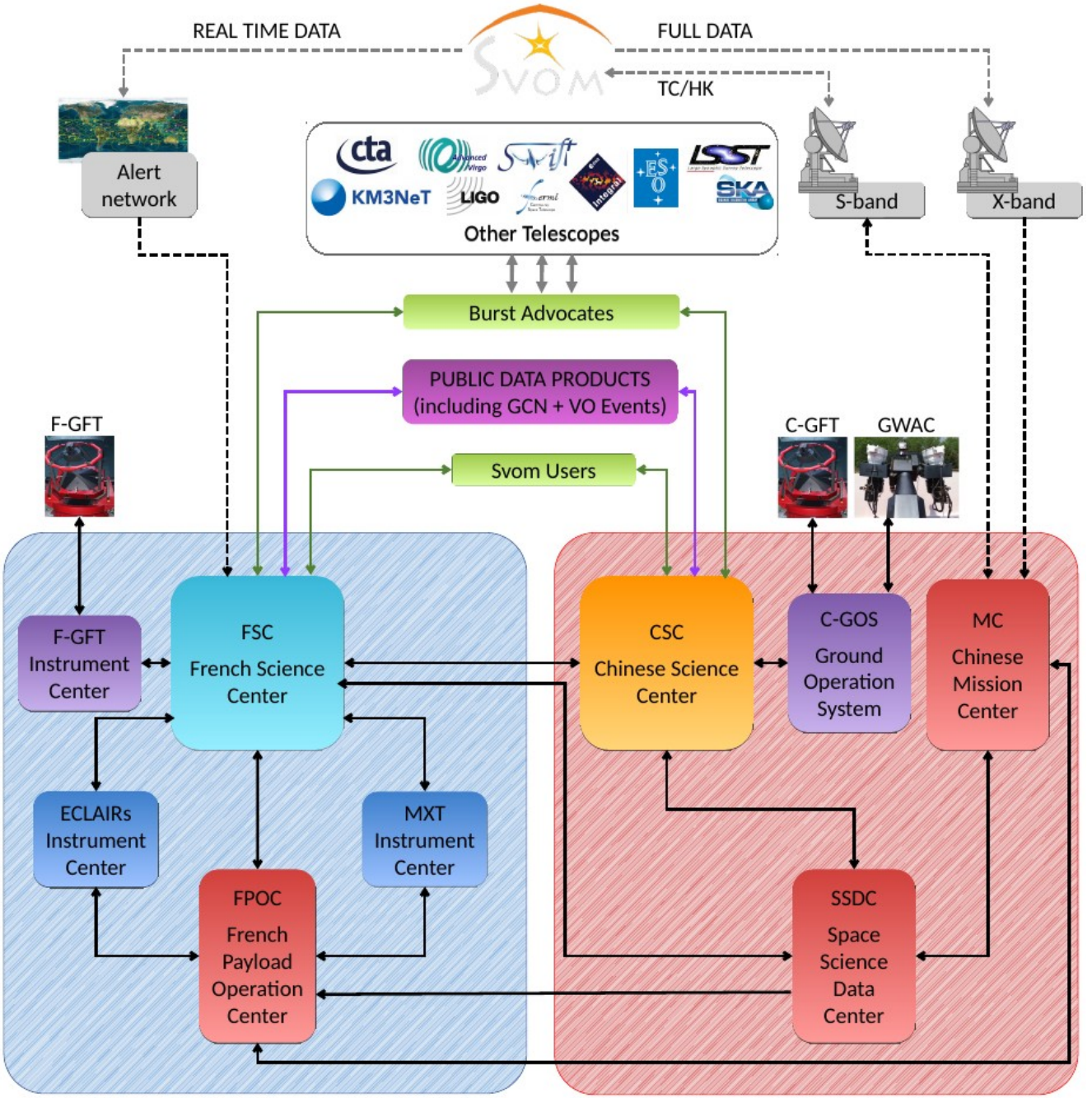
et
Arnaud Claret

Audition GTAA CNES, 9 septembre 2020

# Outline

- **French science activities in the SVOM Ground Segment**
- **The Burst Advocate**
  - Tasks and support team
  - Shift management
- **System view of Scientific Products in France**
- **Burst Advocate tools: recent developments**

# SVOM Ground Segment



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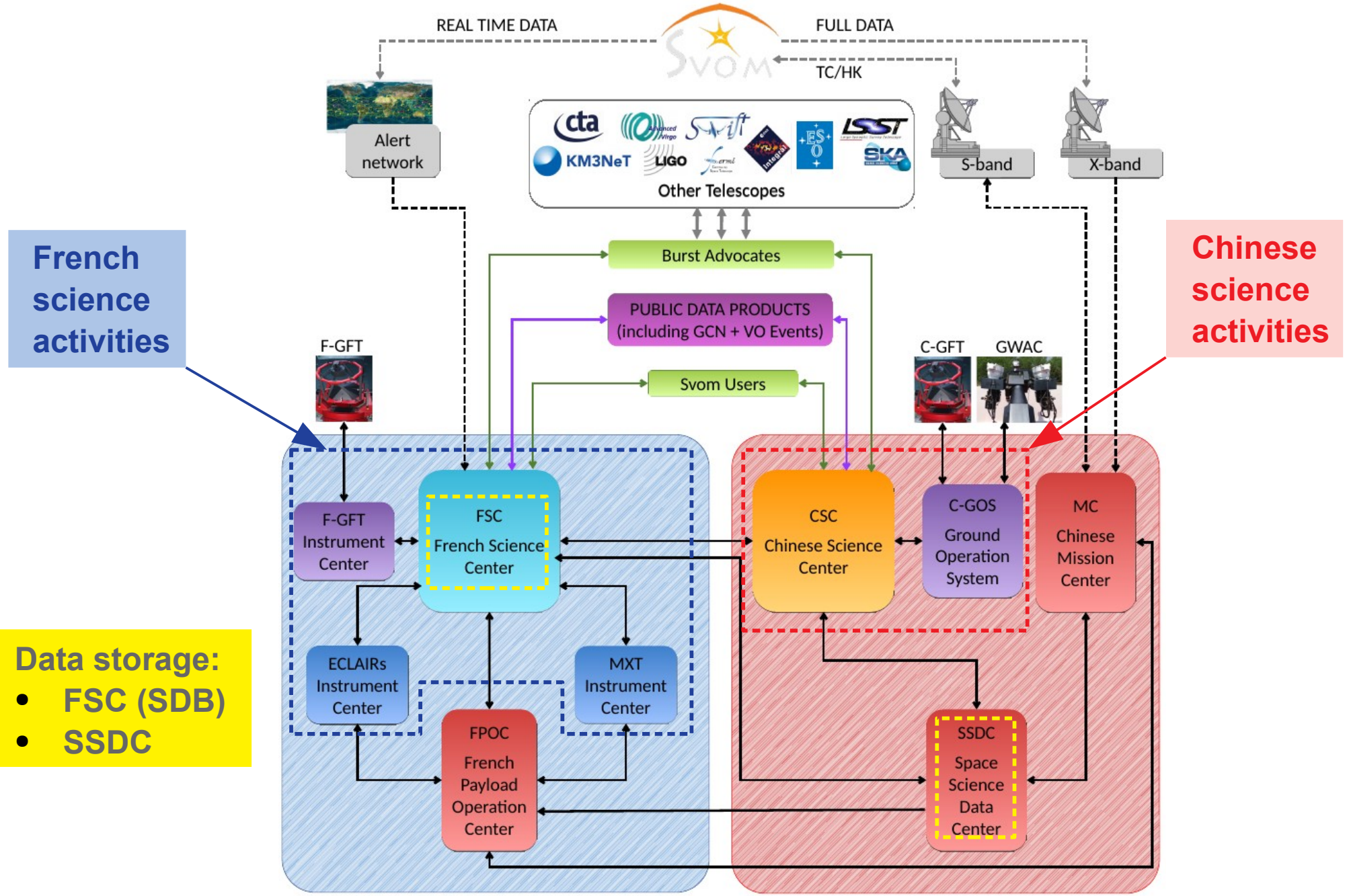


# Burst Advocate tasks

**The BA (one for each burst candidate) has an astronomical role and must distribute quickly the information**

- Supervises the distribution of alert notices based on VHF data (small amount, near real time)
  - N1 notices: results processed on-board, managed automatically (pipelines)
  - N2 notices: results produced automatically (pipelines)
- Validates the trigger (false alert?)
  - For example, based on crude classification and space weather
- Monitors the follow-up observations with robotic telescopes
- Supervises the analysis of X-band data (full data set, received hours after the trigger)
  - Automated analyses (pipelines)
  - Interactive and refined analyses (by Instrument Scientists, see next slide)
  - Distribution of N3 notices (instrument specific)
- Writes the all-instrument circular on the basis of X-band data
- Organises a teleconference for interesting GRBs (revisit through ToO?)
- Monitors the follow-up observations with large telescopes
- Writes a report for each GRB candidate

# Burst Advocate support team

**Based on Swift / Fermi / INTEGRAL experience and feedback**

- **Instrument Scientist (IS, one for each instrument): expert on data analysis**
  - Generates the final scientific products elaborated from X-band data
  - Sends the circular relative to one instrument

- **Instrument Expert (IE, one for each instrument): on-call expert with an engineering role**

- **BA-assistant (one at each science center CSC/FSC): provides local support to BAs**
  - Helps unexperienced BAs
  - Helps to coordinate follow-up observations, including for the ToO program
    - Checks the pertinence of GRB revisit
    - Identifies flares of catalogued sources (real triggers but not GRBs)
    - Provides help for ToO-MM (multi-messenger) activities

# Burst Advocate shift management

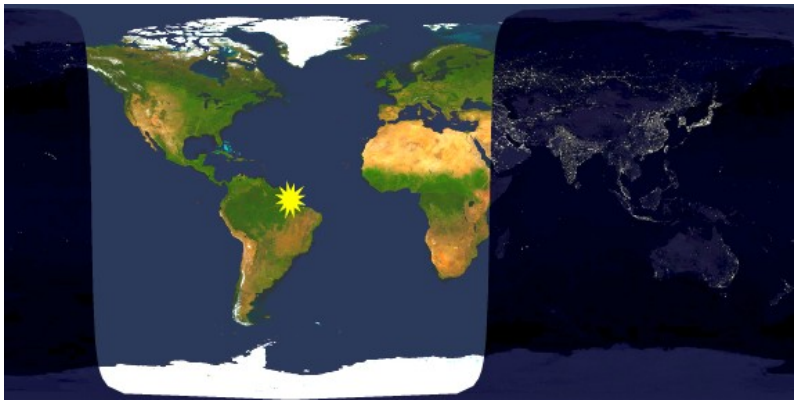
- **Under Chinese responsibility**
  - Tool developed by China
  - Lists of BA, IS, IE, BA-assistant provided in advance

@1:30 Paris (7:30 China)

Western telescopes are operating when the Chinese shift starts

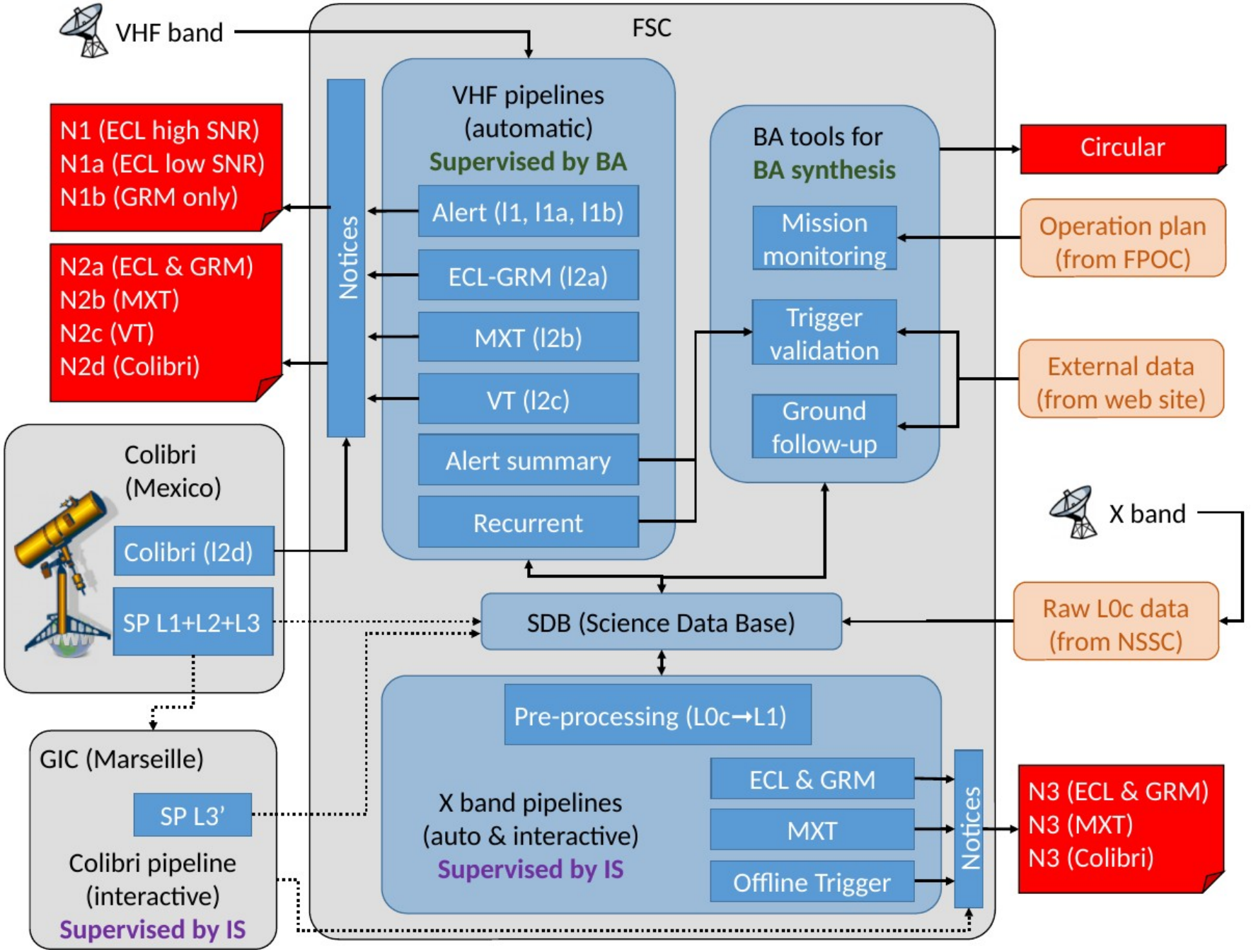
- **The global agreement for the mission is applied to the shift duration: 60% China vs. 40% France**
  - 14.5h over 24h duration for China, 7:00 - 21:30 LT
  - 9.5h over 24h duration for France, 15:30 - 1:00 LT (8:30 - 18:00 LT in Mexico)

@16:30 Paris (22:30 China)



Eastern telescopes are operating when the French shift starts

# System view of scientific products (Core Program)



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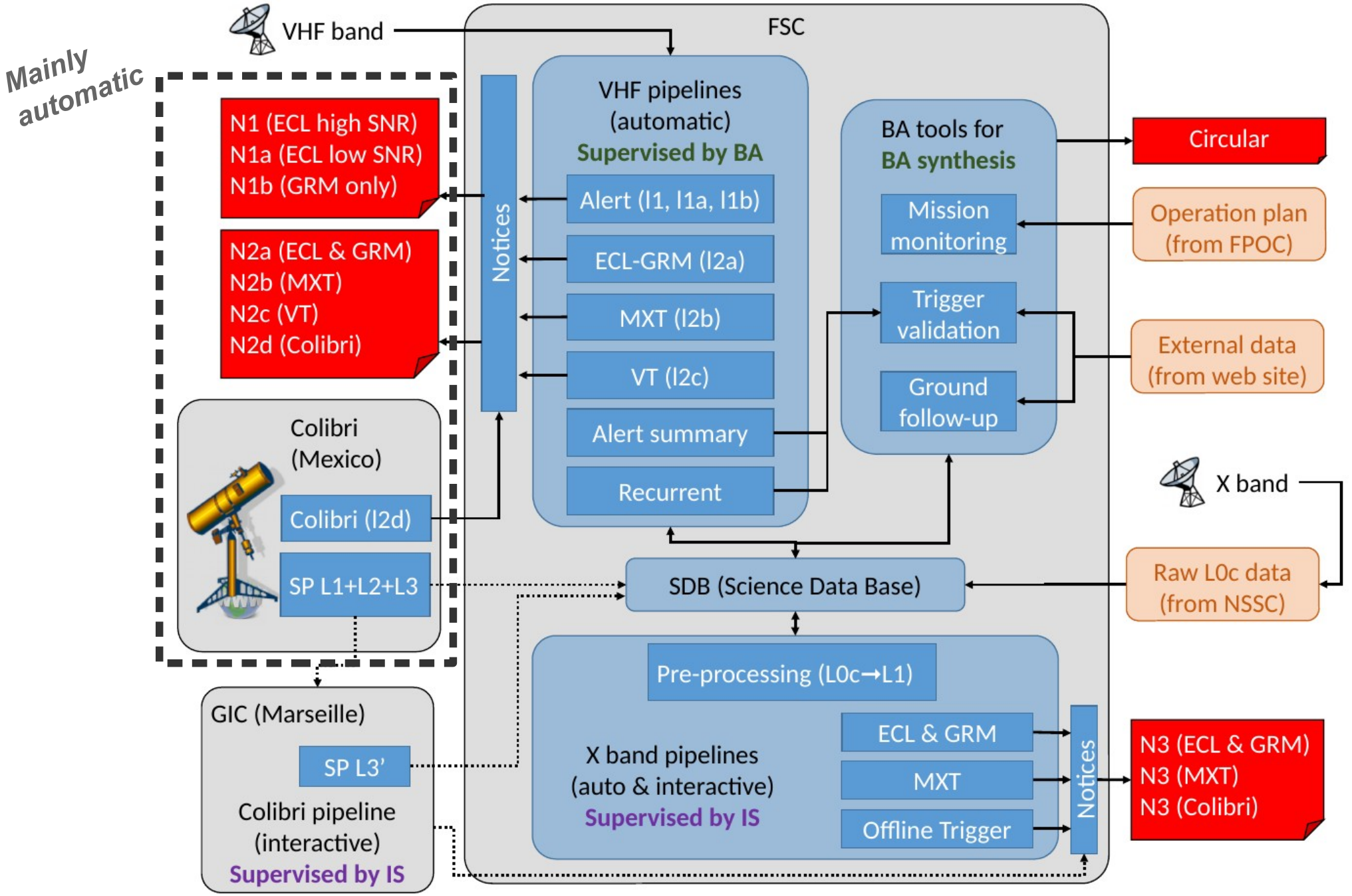

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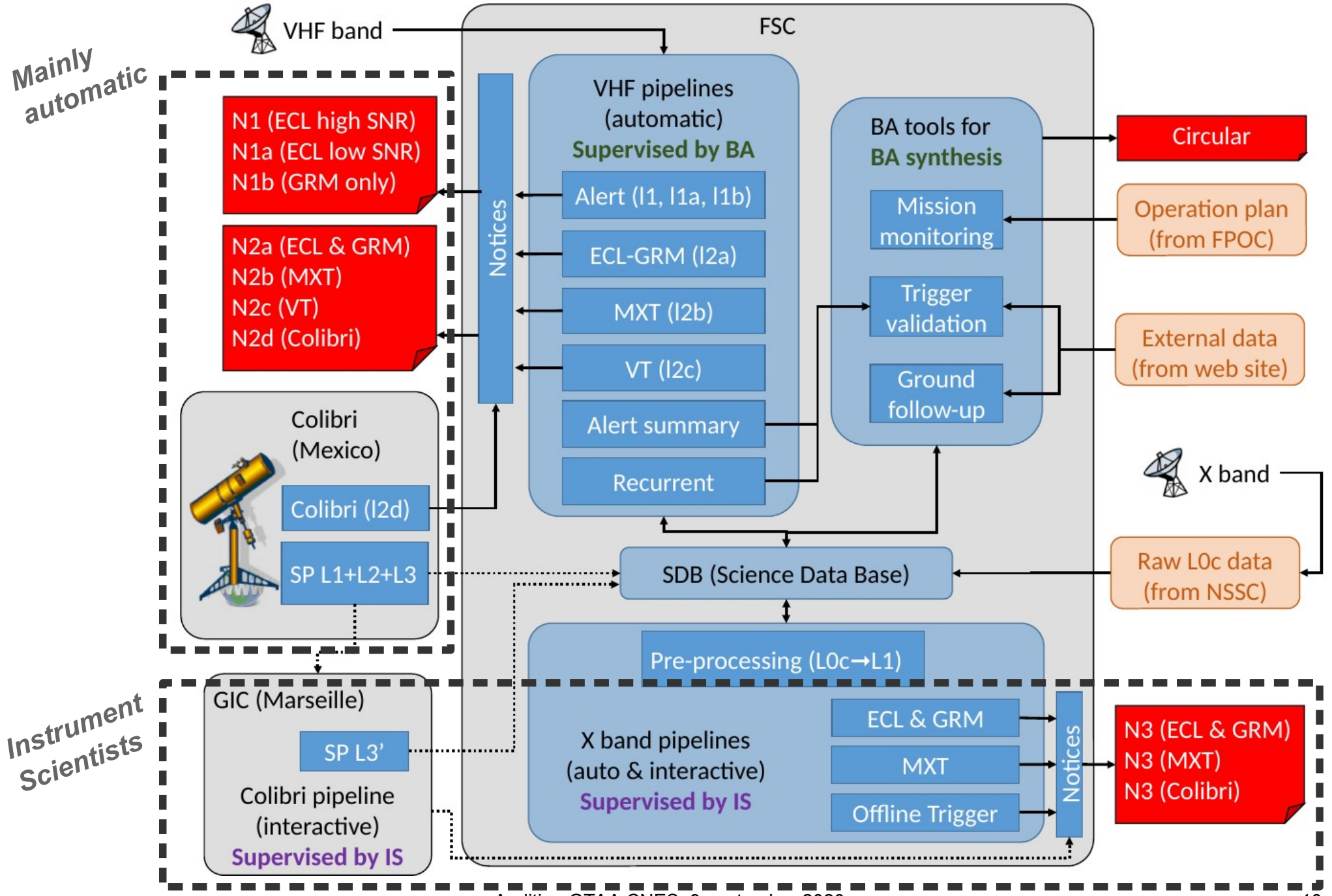

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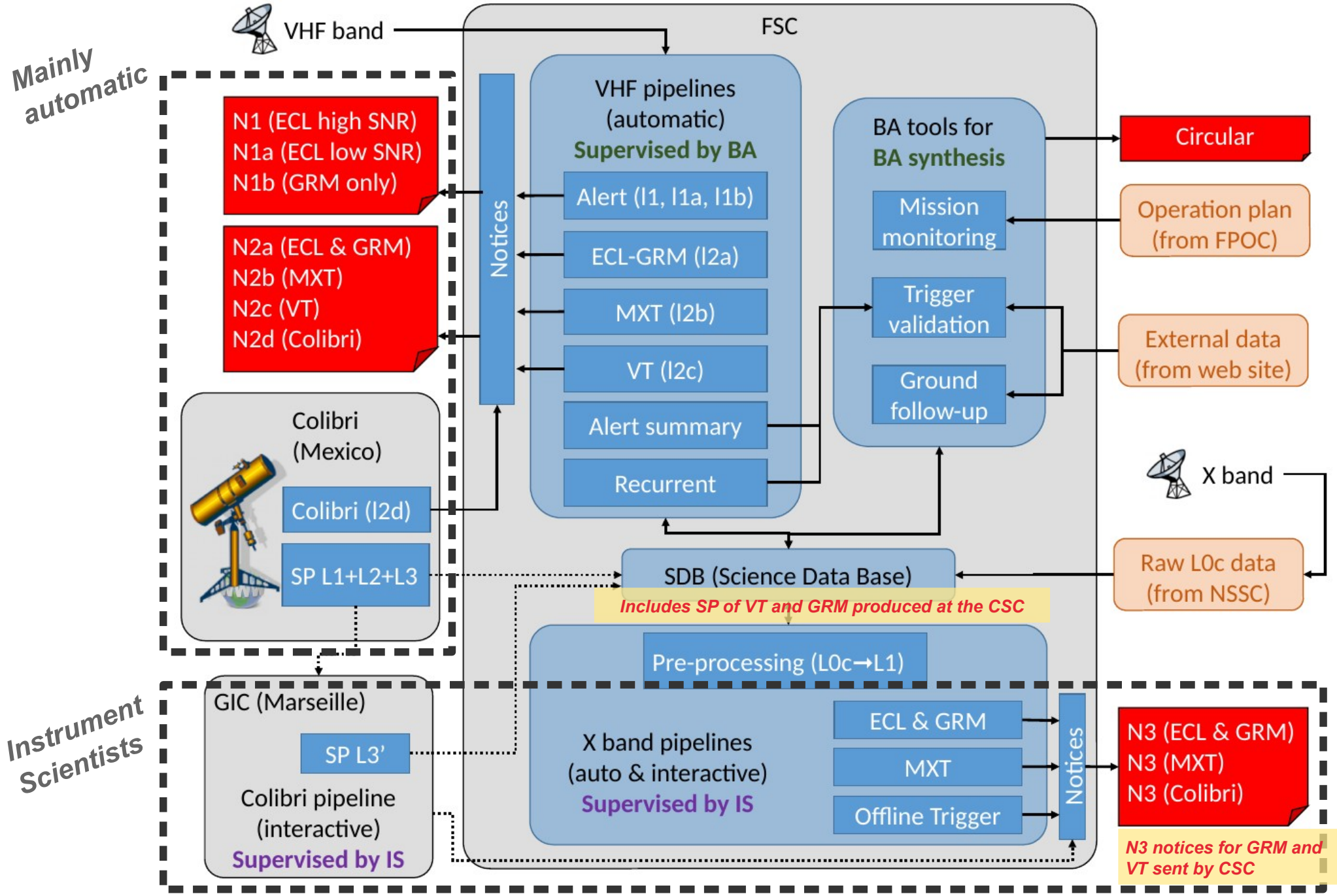

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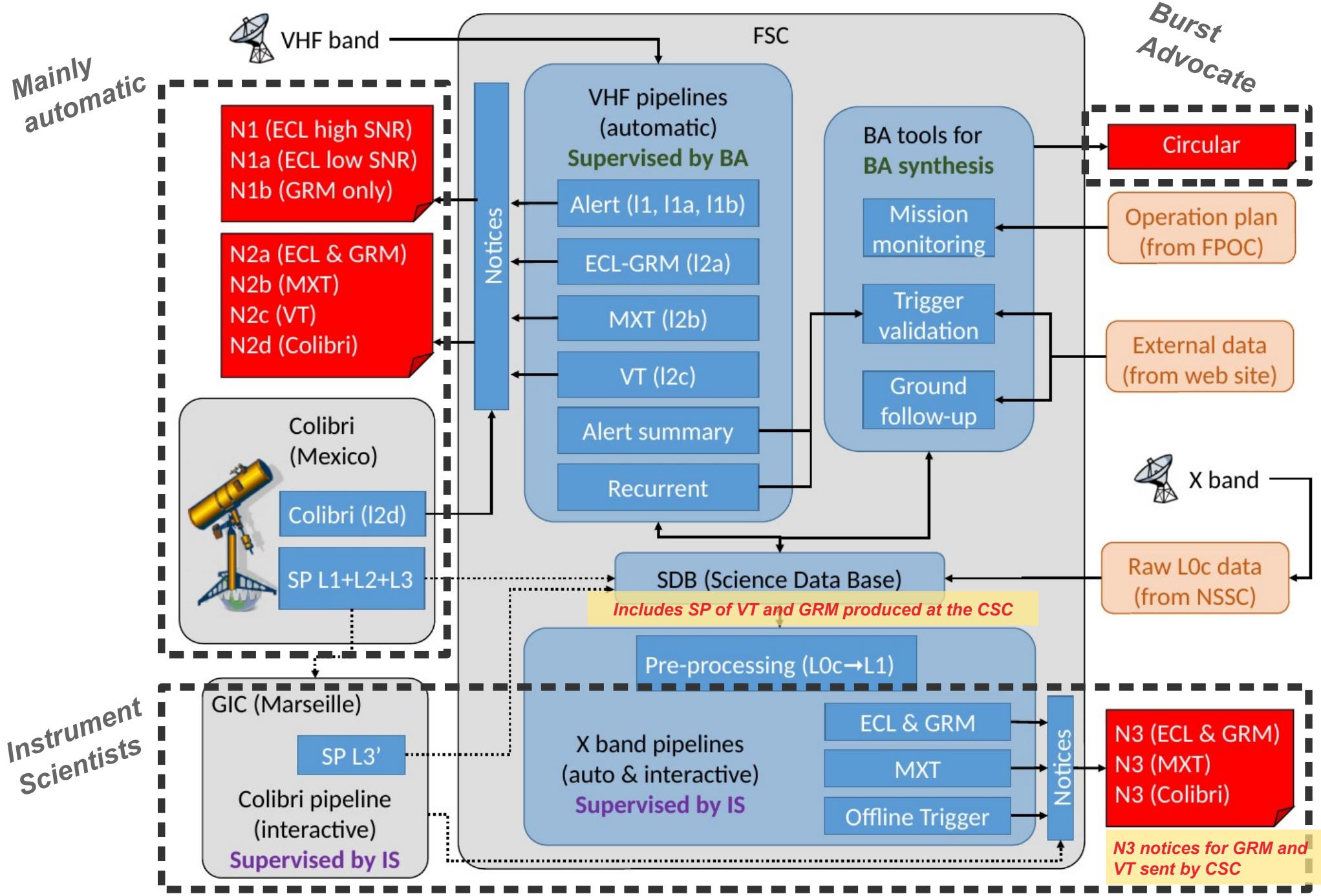
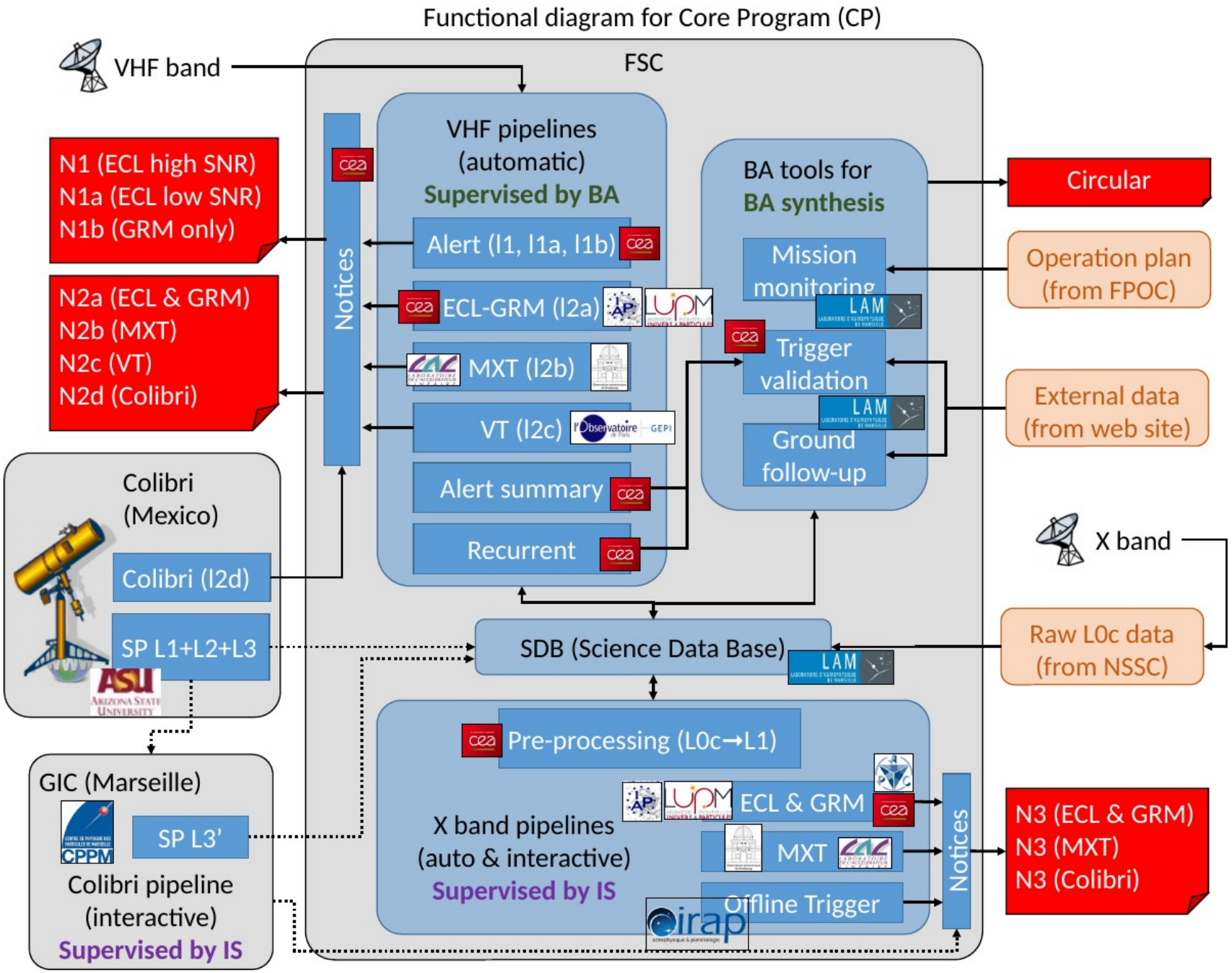


# Responsibilities of French laboratories (Core Program)



# Burst Advocate tools

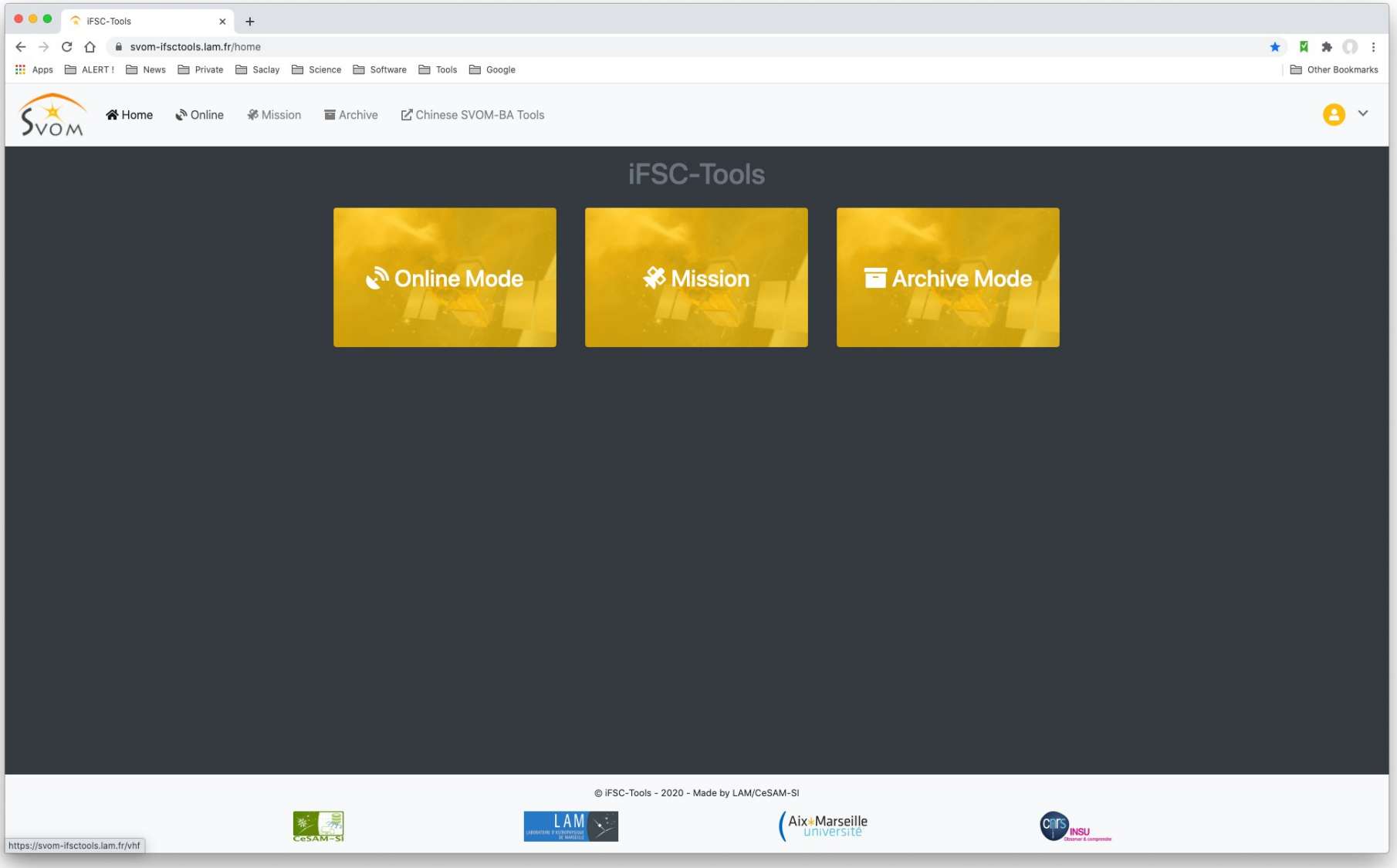
- **China responsibilities (CSC BA-tools)**
  - Management tool for BA shifts
  - Validation / display tools for visible telescopes

- **France responsibilities (iFSC-tools)**
  - Monitoring of the VHF packet reception in real time
  - Validation / display tools for ECLAIRs, MXT, Colibri (+GRM and VT)
  - For Instrument Scientists working in French Instrument Centers (ECLAIRs-IC, MXT-IC, GFT/Colibri-IC): monitoring of scientific products

- **iFSC-tools and CSC BA-tools are complementary**
  - In practice, the BA will be connected to both web interfaces
  - All products are shared on data-bases (SDB for FSC, NSSC for CSC)

- **Prototype iFSC-tools v2 will be used for the next Data Challenge (DC-2) end 2020**
  - Analysis of the full VHF data set, test of the degraded scenario for data reception

# Screenshots of iFSC-tools (LAM)



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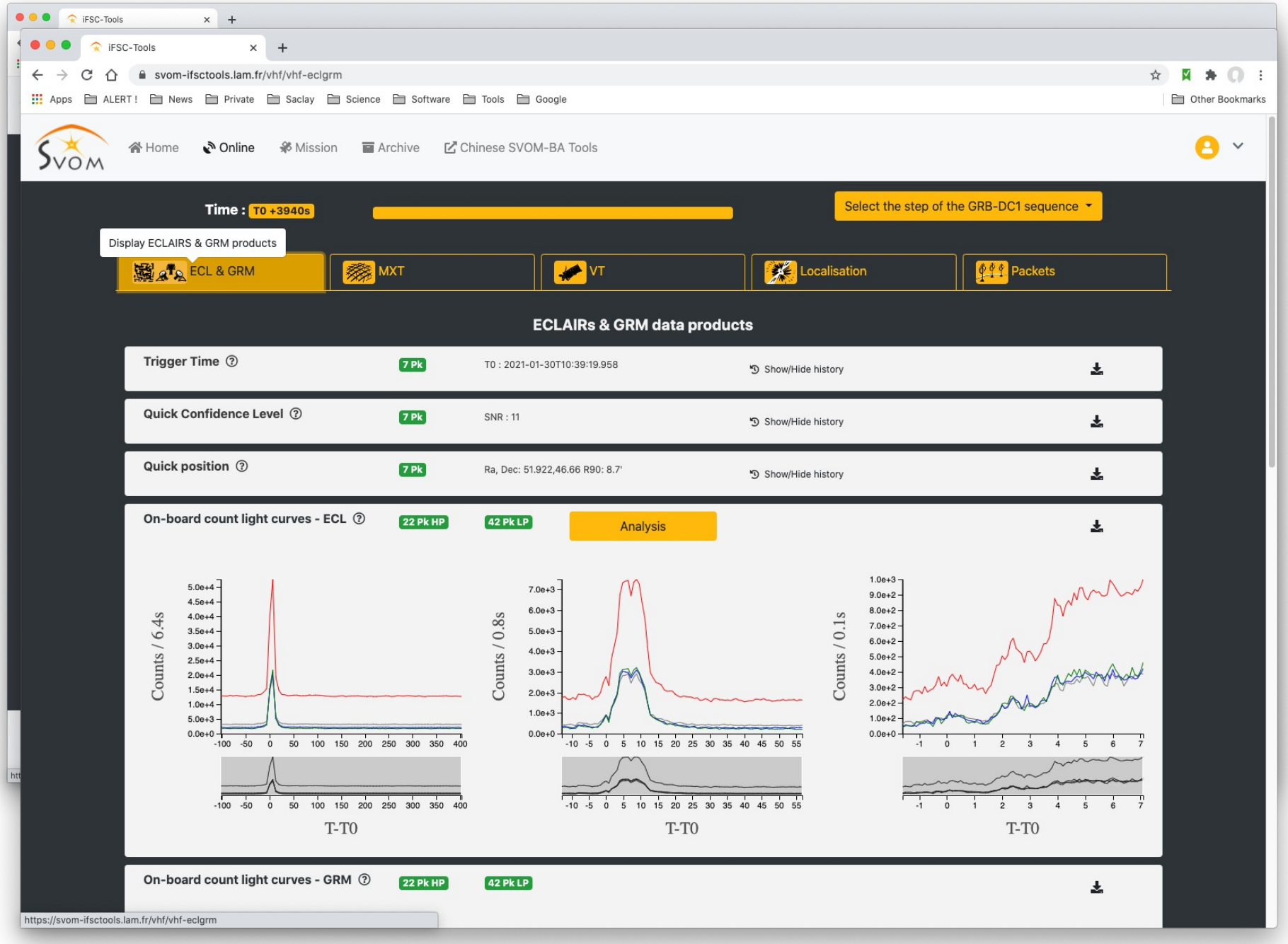

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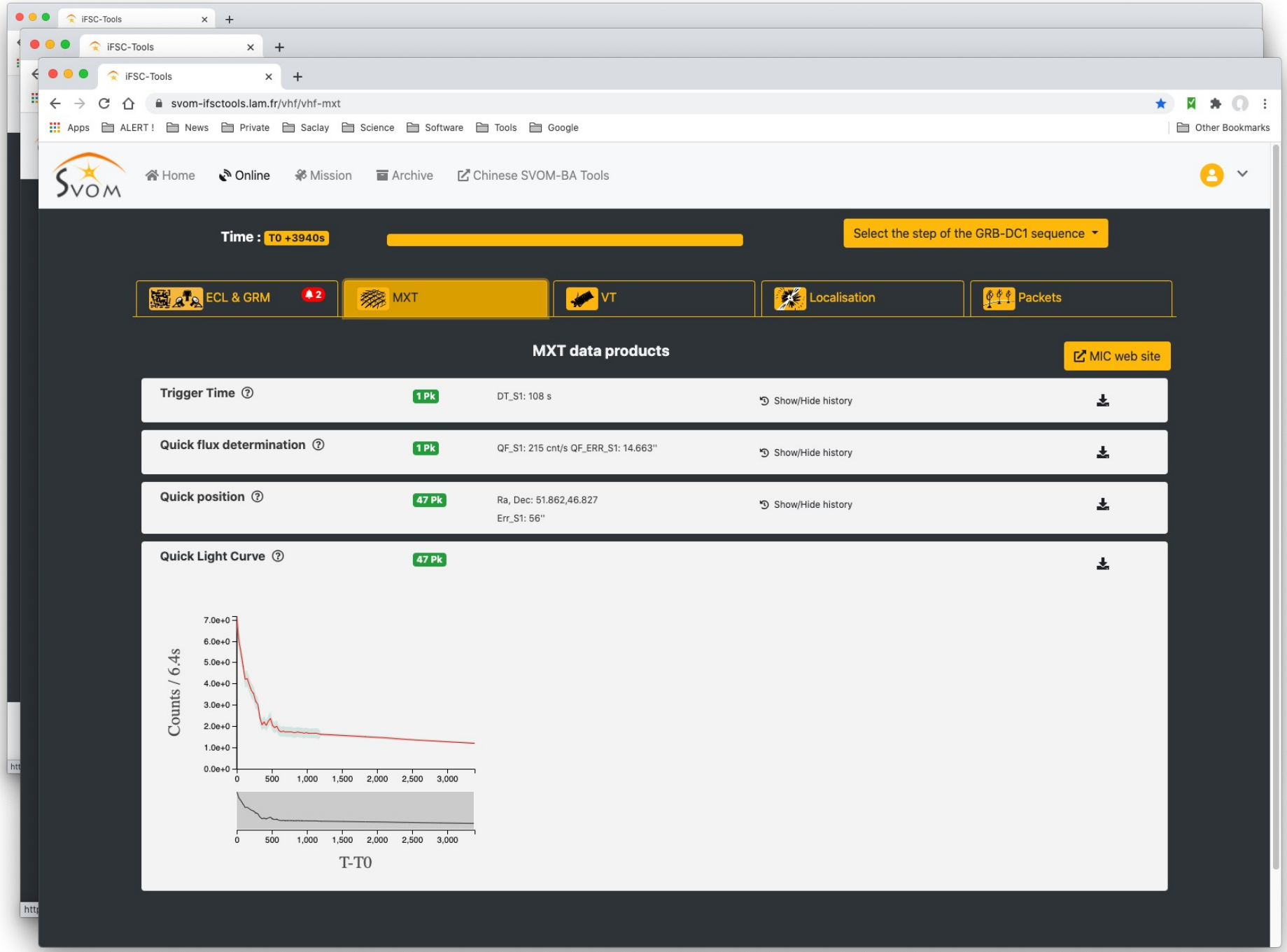

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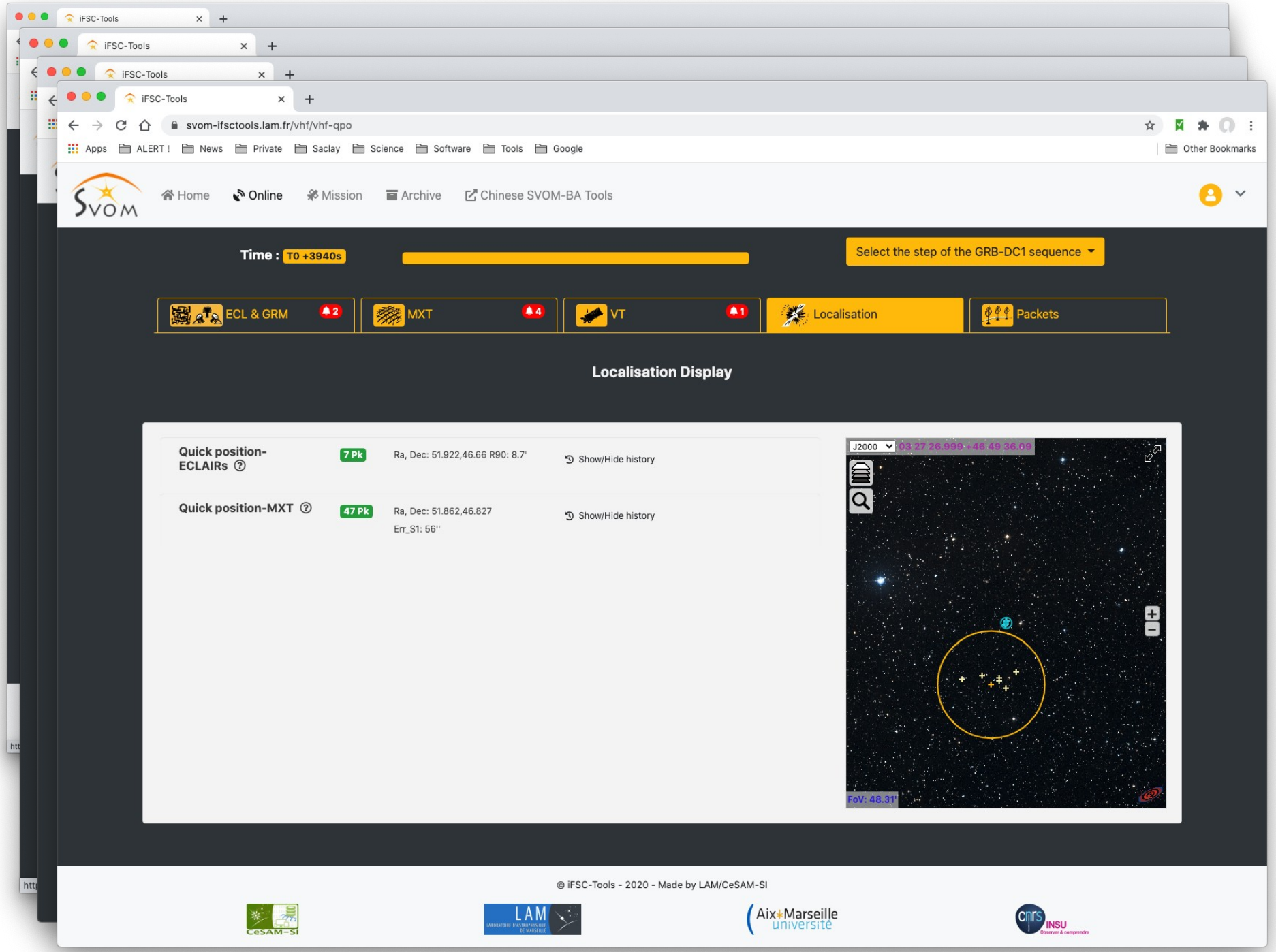

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