CSC BA Tools Quick Guide (V2.4) for BA Training

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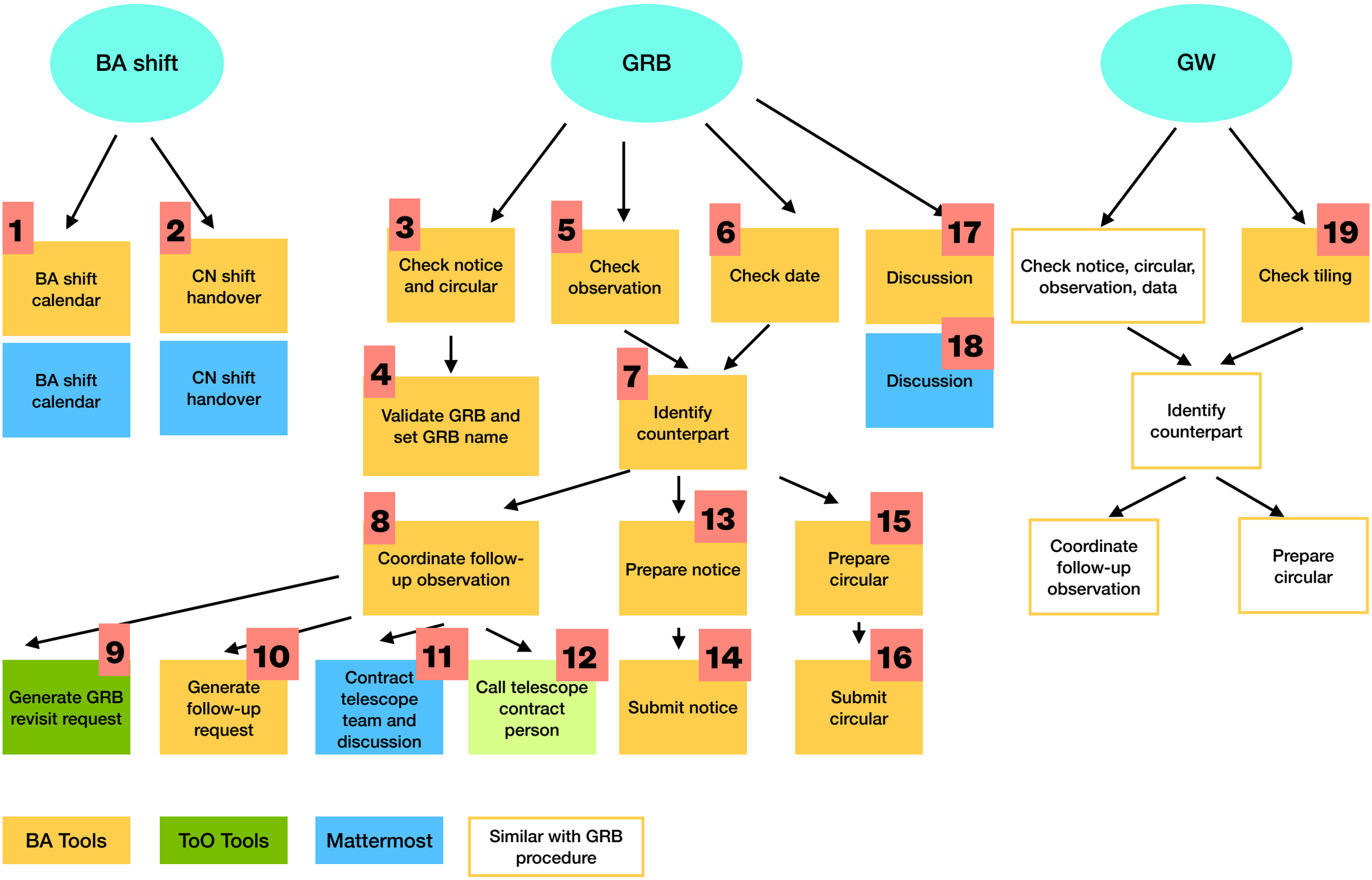
About SVOM

Outside GRB observations, ToO observations, calibration observations, operational manoeuvres and SAA passages, SVOM instruments are available to science observations of astrophysical targets with the maximum efficiency allowed by the constraints of the core program. Preplanned observations of sources (or region of the sky) will constitute the SVOM General Program (GP). The GP will be allocated 60% of useful mission time of the nominal missi 10% of the GP will be outside the B1 law. The total time devoted to GP will be decreased to 35% of useful mission time of the extended mission. Along t mission lifetime, the time allocated to GP outside of the B1 law will be gradually up to 50 % (TBC) for the extended mission lifetime.

Activities for BAs with CSC BA Tools



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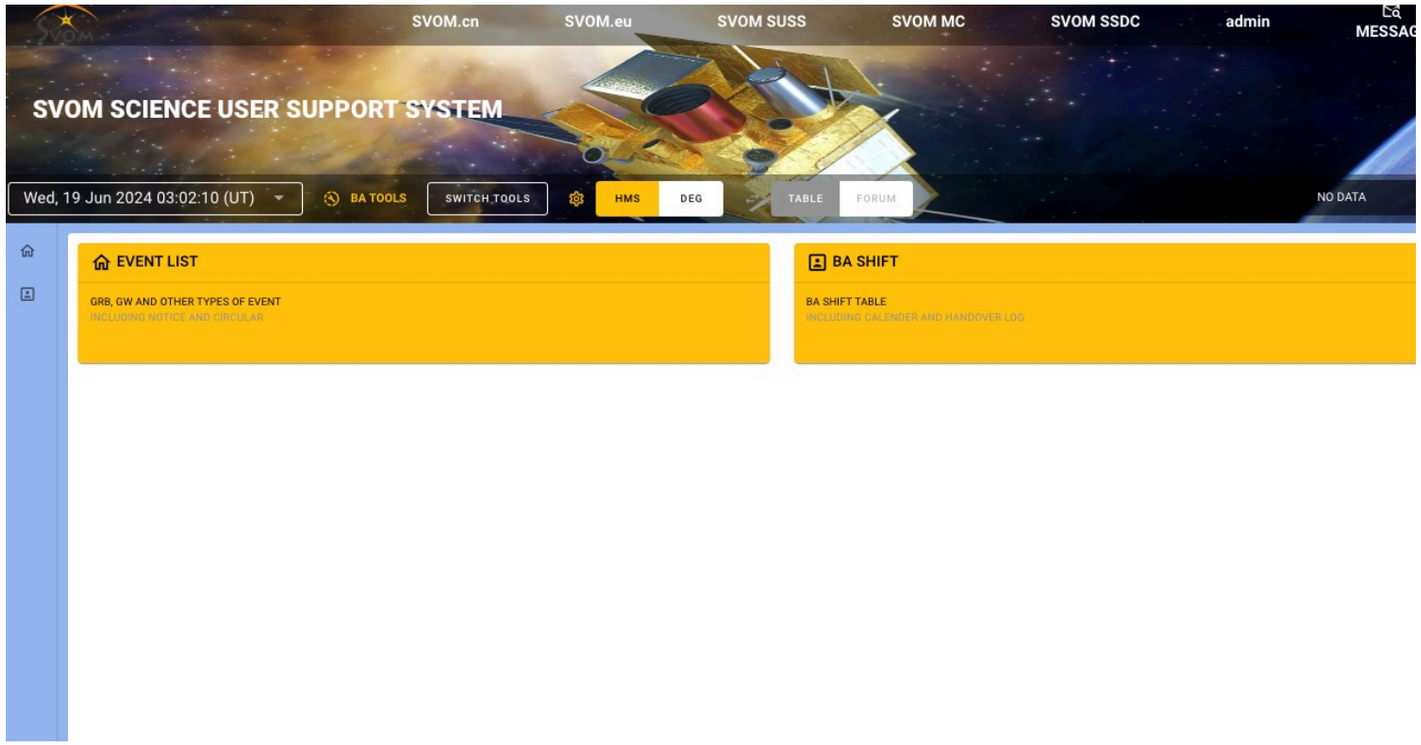
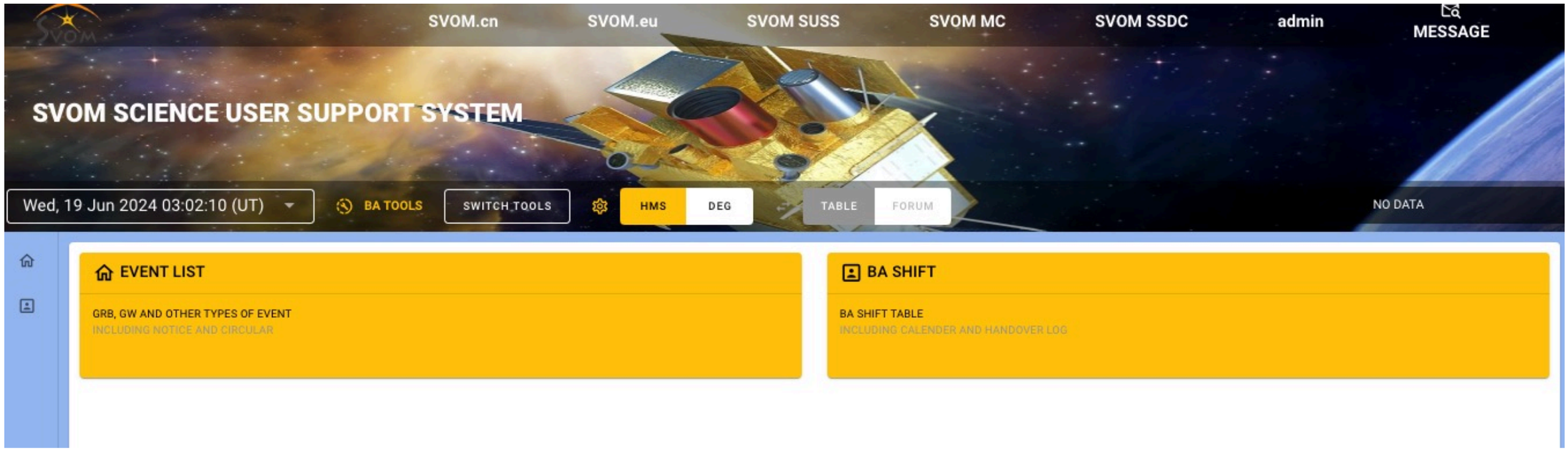


Access to CSC BA Tools

The SVOM Science User Support System (SUSS) integrates SVOM CSC BA, ToO and GP tools. The users need to select the roles after logging in.

Official SUSS Website: https://www.svom.cn/ (will be open for login after the training)
BA Training Website: https://svom-gwacn.cn/BA-dev/ (used for this workshop with username: ba_training, password: 123456)



BA shift

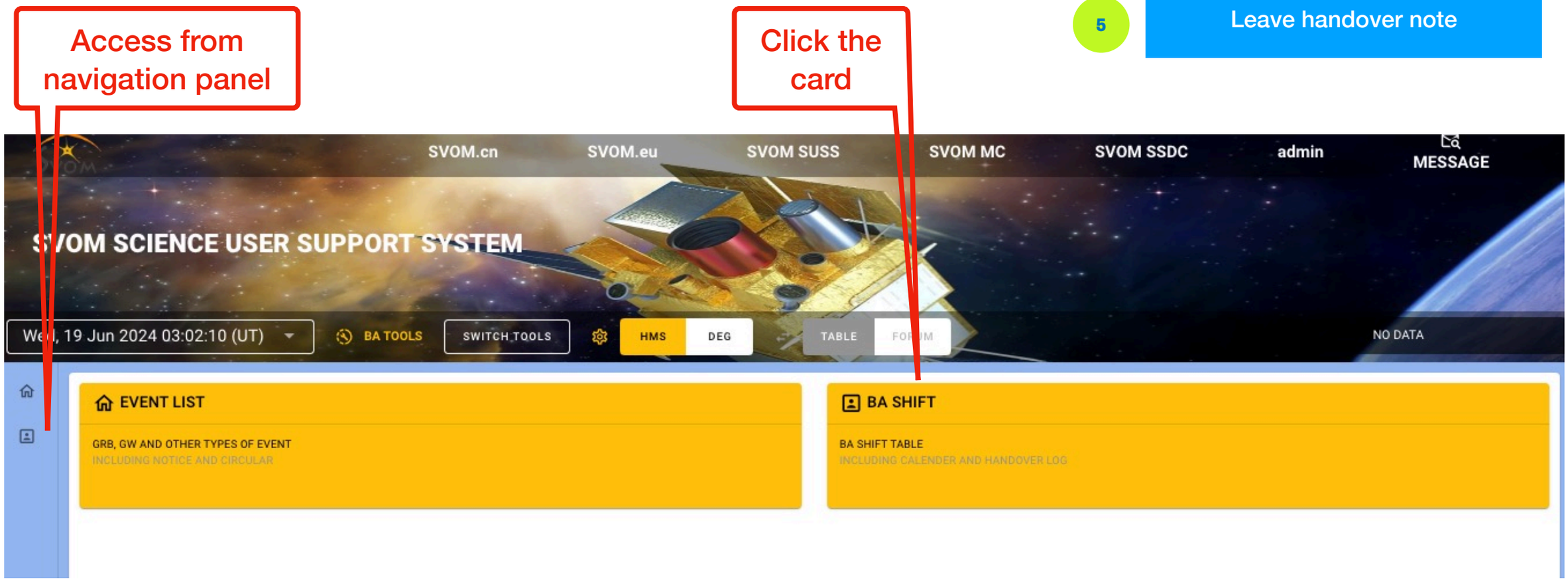
The CSC BA tools provide the functions for organising the BA shift for the Chinese side, displaying the BA calendar of both sides and handovers.

For CN BA, one needs to check his/her duty in the calendar. He/she needs to leave handover note to the successor. The message could be given in the CSC BA tools or in the Mattermost (depending on the organization)

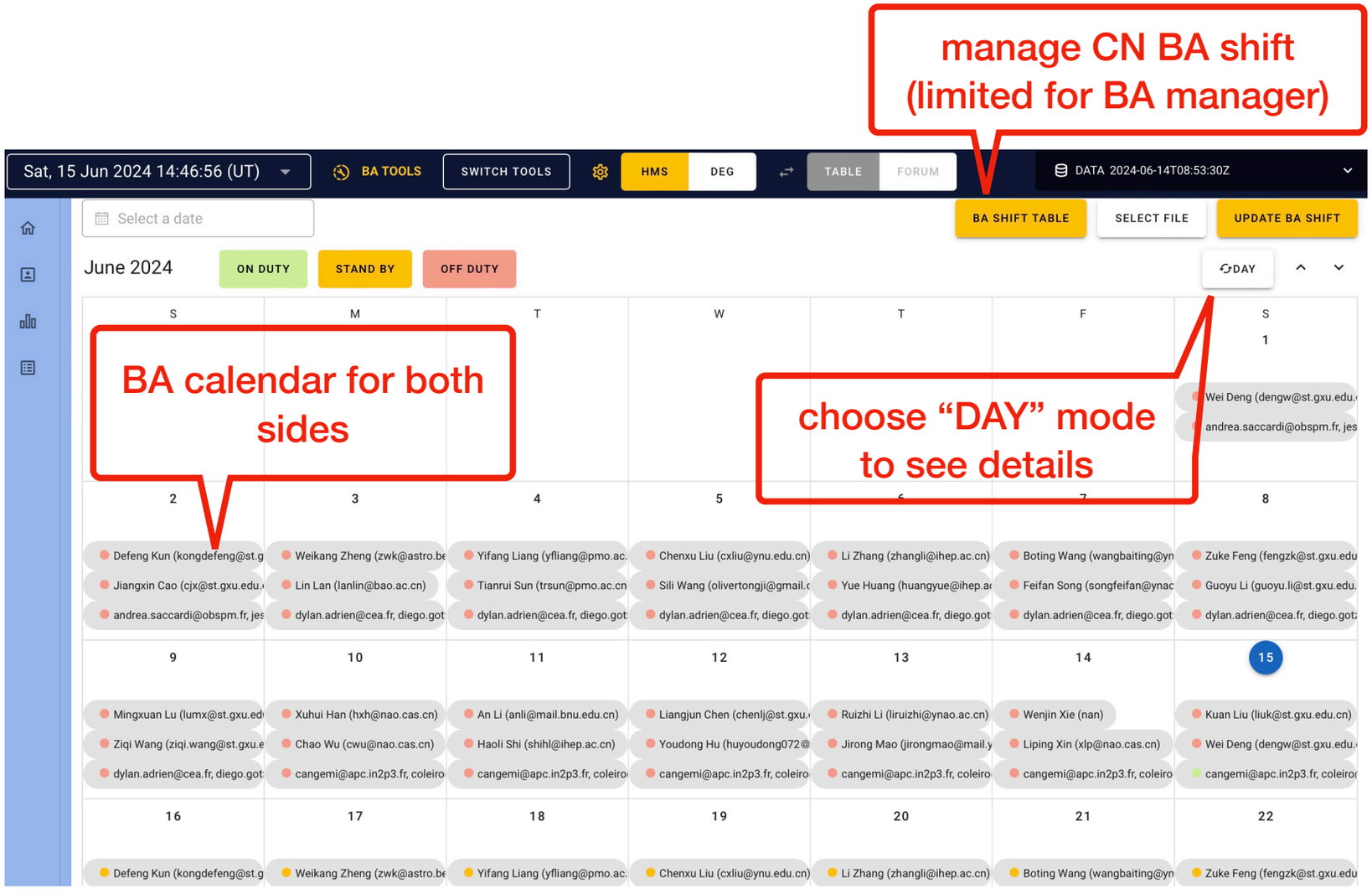
BA shift

Two ways to access the BA shift: from the card in the homepage, from the navigation panel of the left side of the page. It is same for the Event.

1. Open BA shift ✓
2. Check BA calendar
3. Manage CN BA shift
4. Check handover log
5. Leave handover note



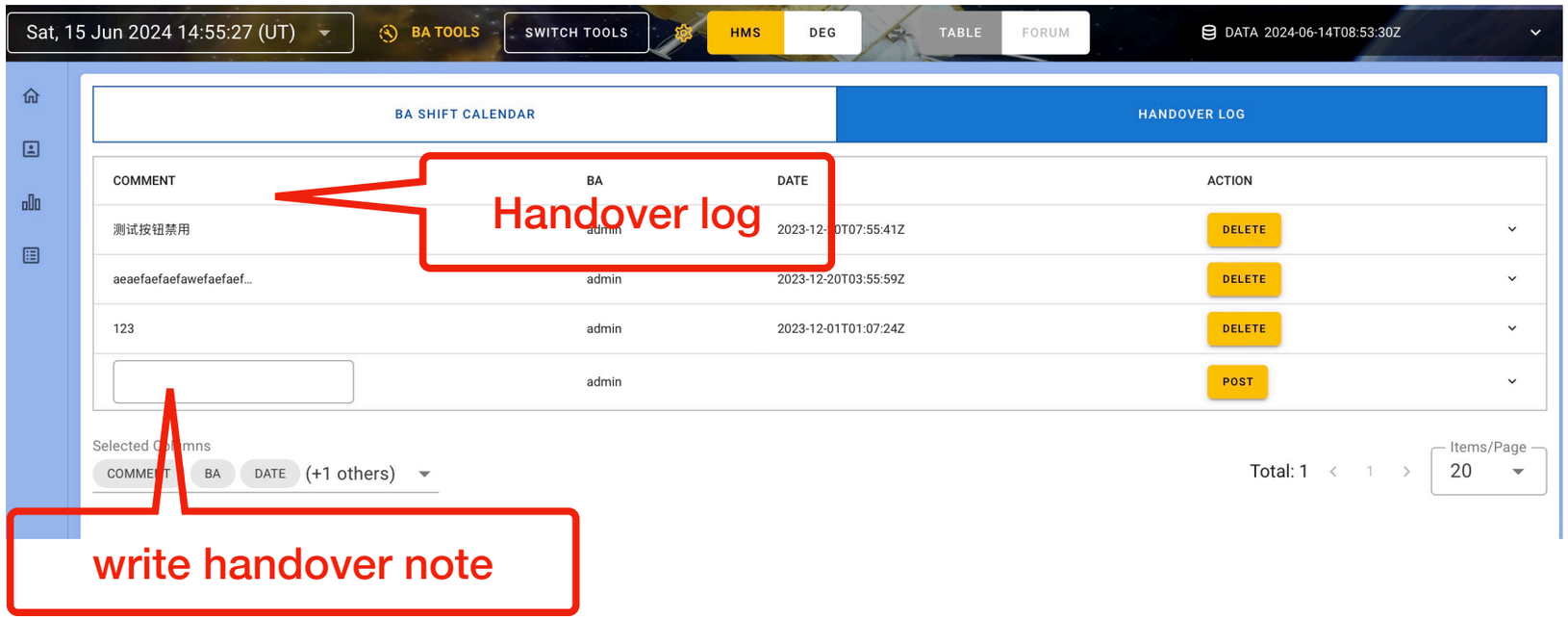
BA shift



1. Open BA shift ✓
2. Check BA calendar ✓
3. Manage CN BA shift
4. Check handover log
5. Leave handover note

The name is not clickable yet. Choose “DAY” mode to see detailed shift each day.

BA shift



1. Open BA shift
2. Check BA calendar
3. Manage CN BA shift
4. Check handover log
5. Leave handover note

BA can take note in the handover page. The note could be seen by all BAs.

GRB: event validation

The CSC BA tools provide the event validation function.

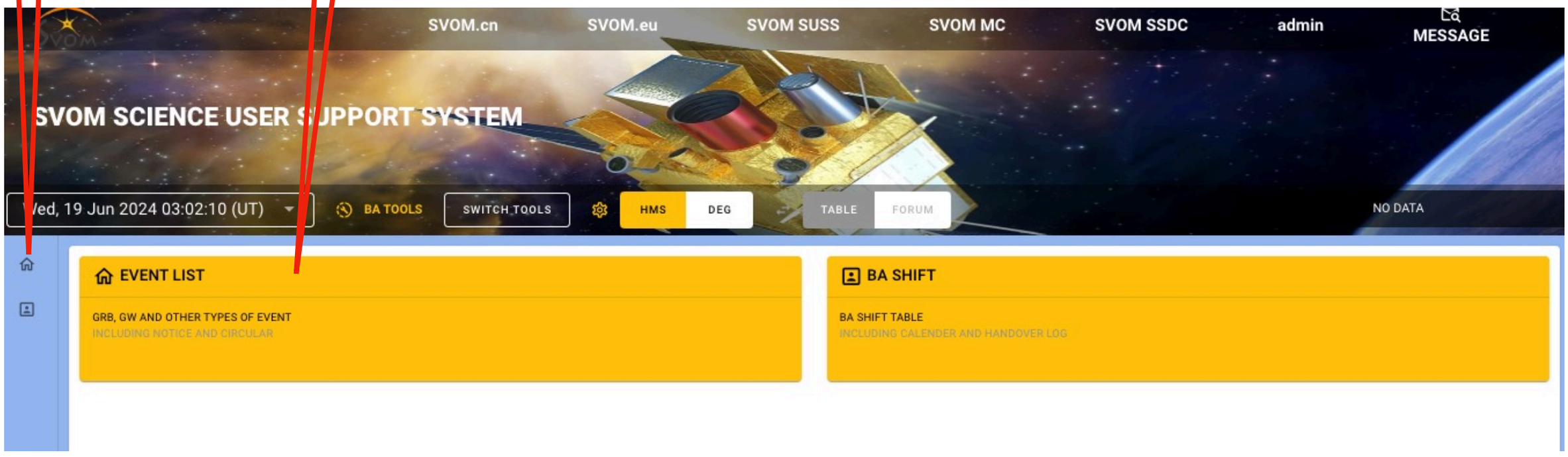
BA from both sides needs to validate the GRB in the iFSC tools. But BA also need to set the GRB official name in the CSC BA tools.

Event validation

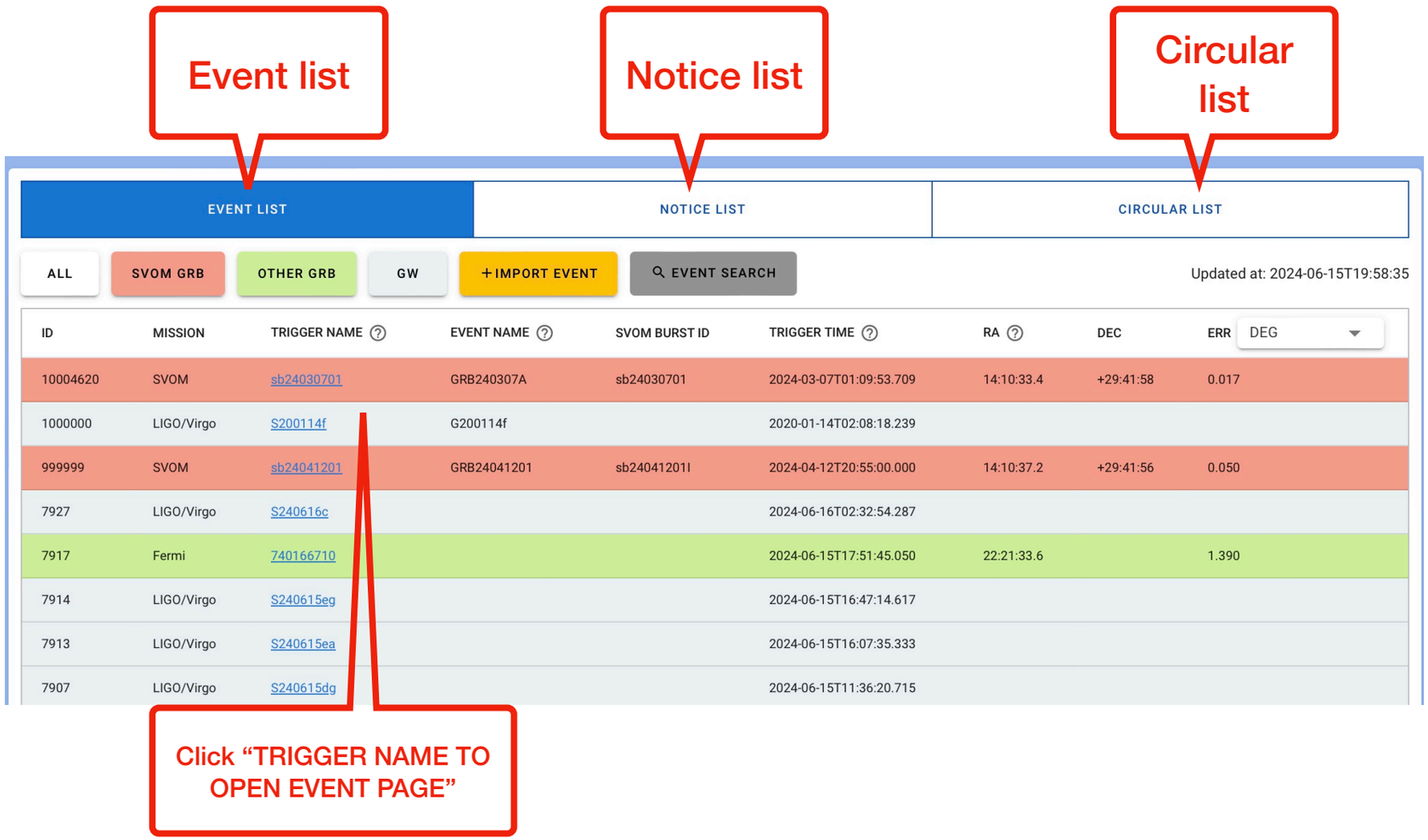
1. Open event list
2. Check GRB, notice and circular
3. Open event page
4. Open validation window
5. Set GRB name

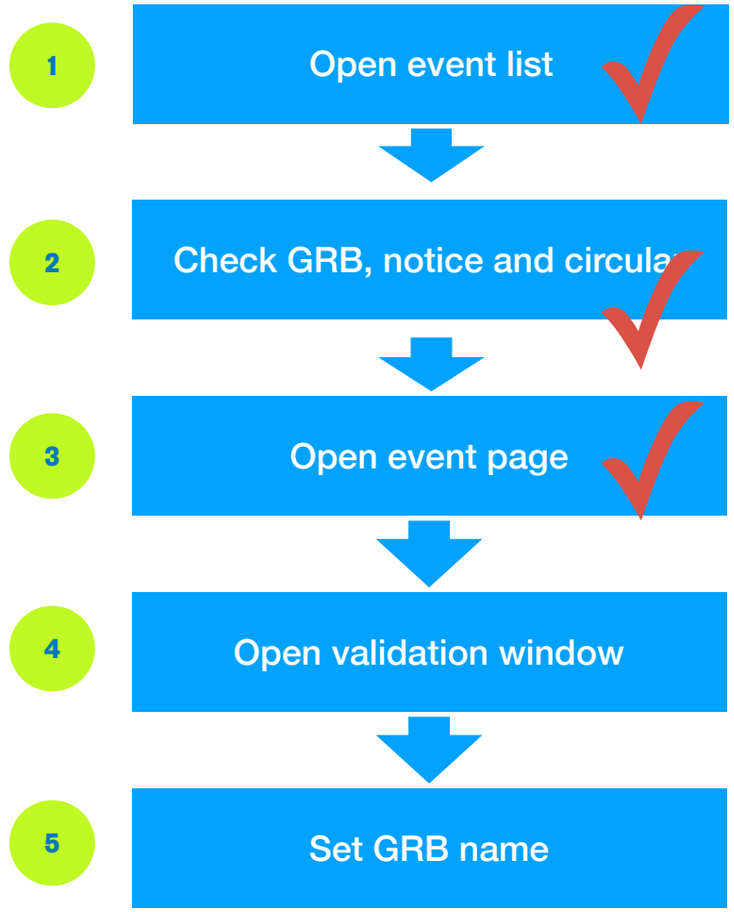
Access from navigation panel

Click the card



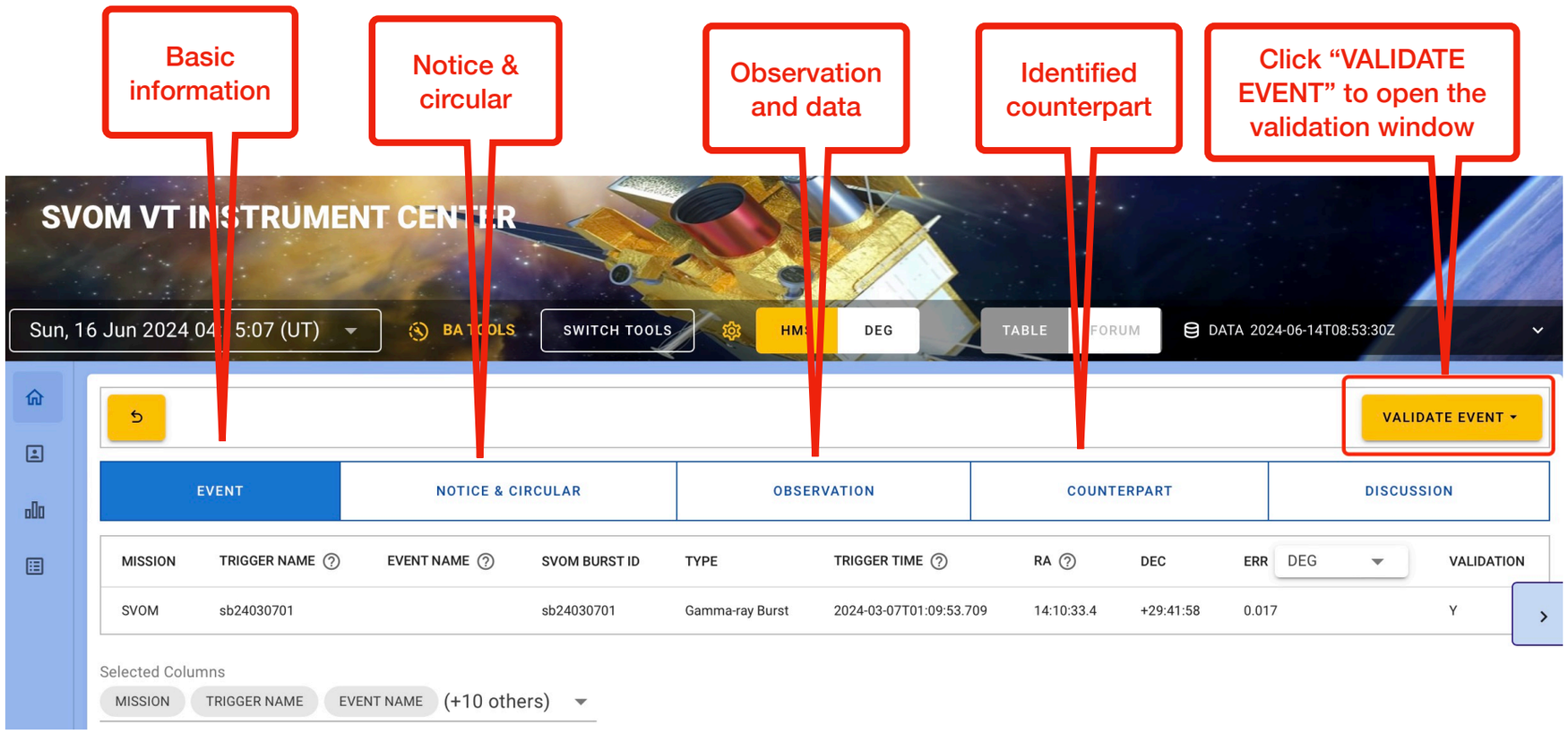
Event validation





The GRBs from not only SVOM but also other missions and GW are displayed in the page.

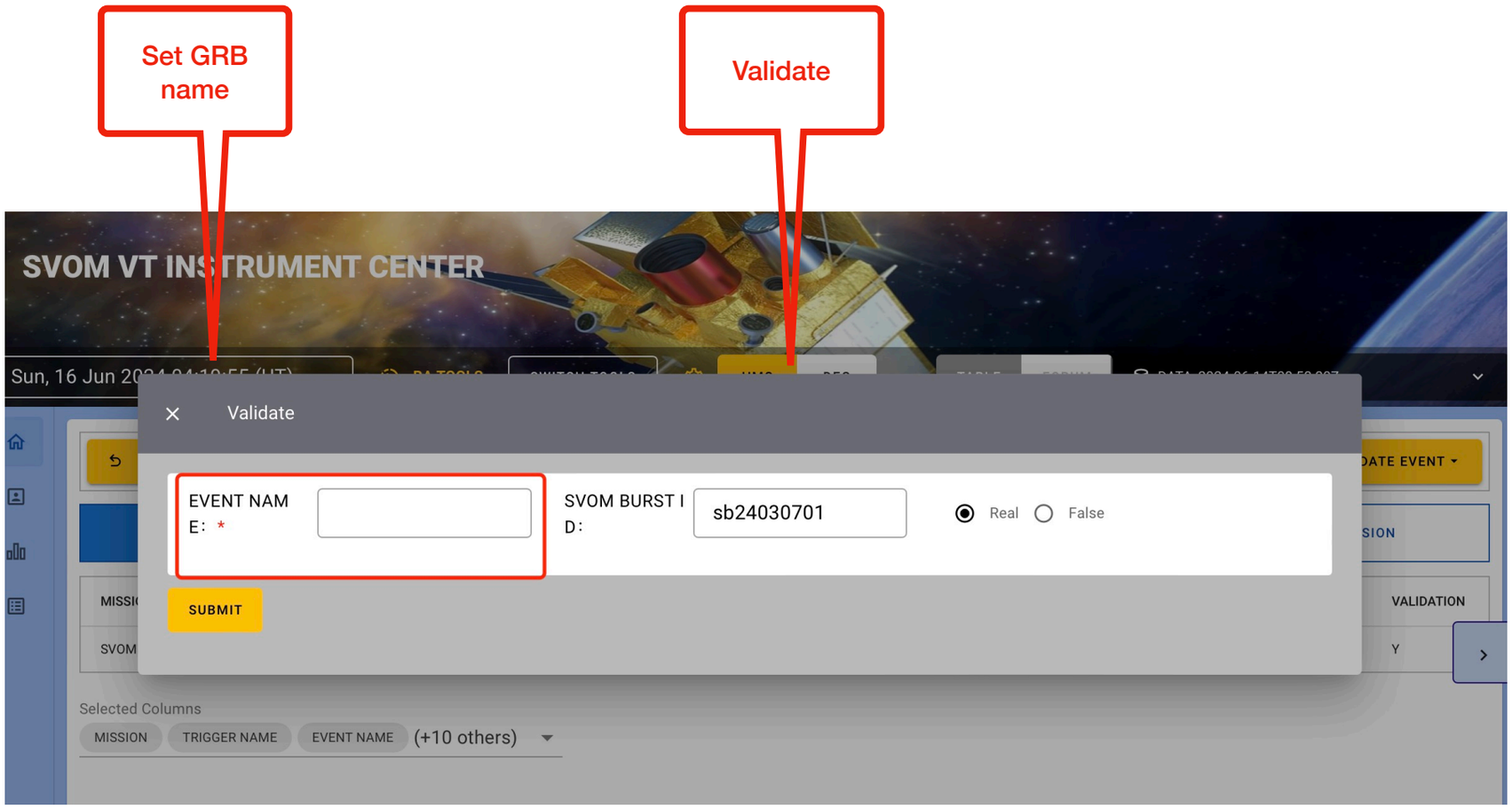
Event validation



1. Open event list
2. Check GRB, notice and circular
3. Open event page
4. Open validation window
5. Set GRB name

In this page, all information of this GRB are gathered. BA can find the burst ID, trigger time, best coordinates, notices, circulars, all space-based and ground-based observations, all identified counterparts and all discussions made by BAs.
In the top right of the page, a list shows all actions that BAs can do with the CSC BA tools, including: validating event, updating data, coordinating follow-up observations, identifying optical counterparts of GRB and preparing notices/circulars.

Event validation



1. Open event list
2. Check GRB, notice and circular
3. Open event page
4. Open validation window
5. Set GRB name

BA needs to set the wide-used name of GRB as a official name, like “GRB240307A”. The event name for non-SVOM GRB should also be given. A benefit of setting name is one astronomical event independently detected by different satellites can be linked by doing this.

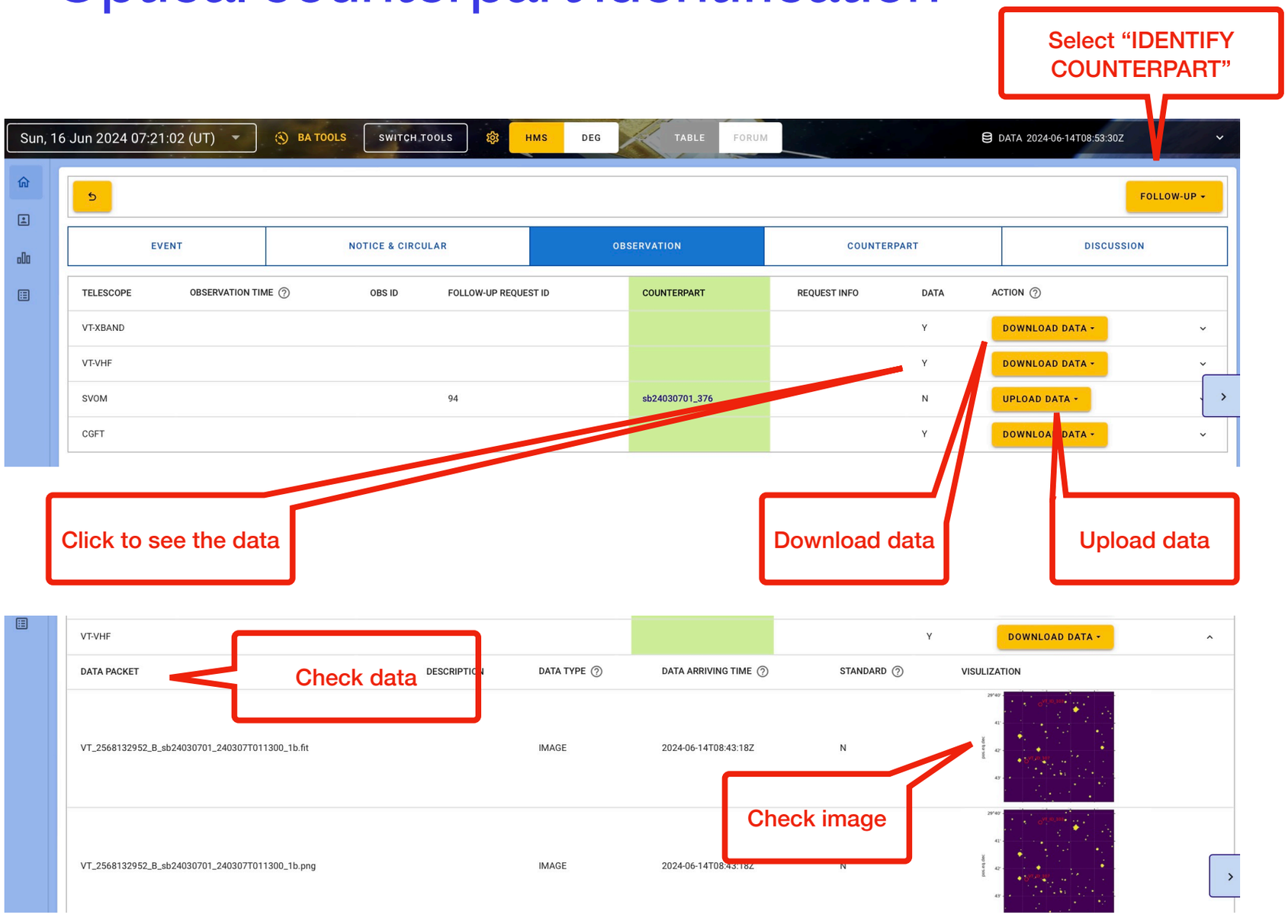
GRB: optical counterpart identification

The CSC BA tools provide the optical counterpart identification functions.

For BA from both sides, one can check all data of one GRB in the BA tools. BA needs to identify the optical counterpart based on the data.

The real optical counterpart of GRB (if exists) could be detected by different telescopes in different bands. This source independently detected by different telescope has different names (candidates level 1 (CL1)) and coordinates. The counterpart identification strategy is that, first, the CL1s are grouped automatically or manually. The grouped CL1 can be considered as one source. Then, BA can select the counterparts from the sources based on their positions, morphologies and variable features.

Optical counterpart identification

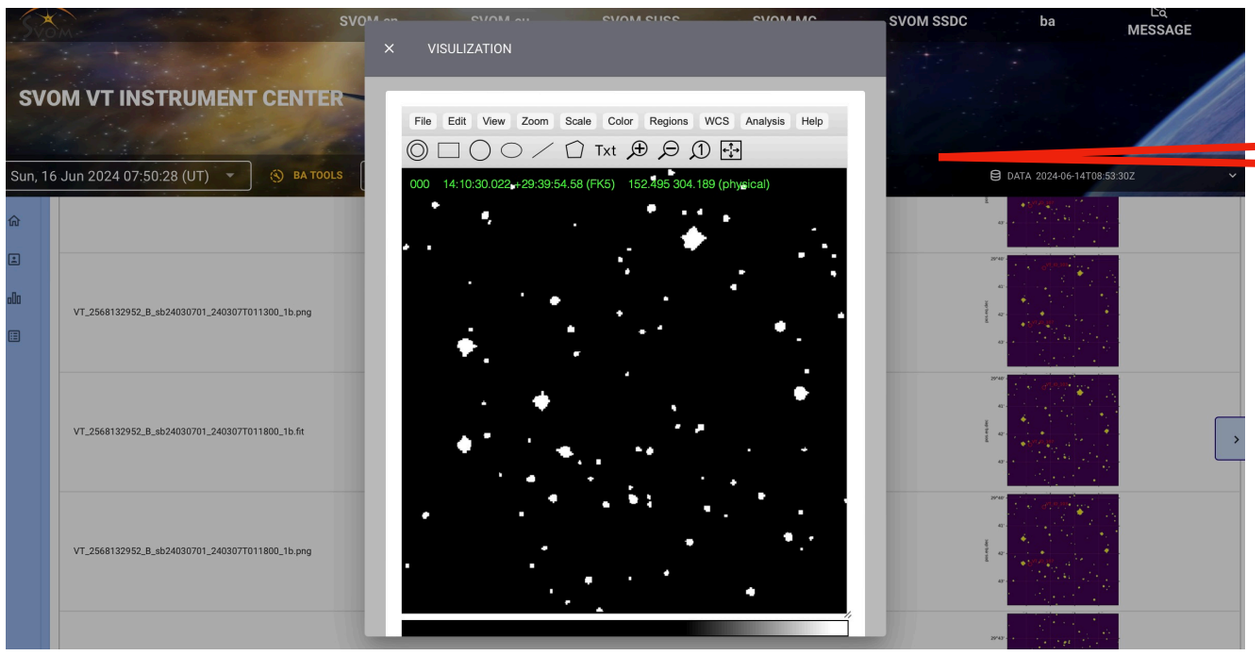


1. Check observation and data
2. Open identification page
3. Automatic grouping
4. Manual grouping
5. Manage counterpart
6. Identified counterpart list

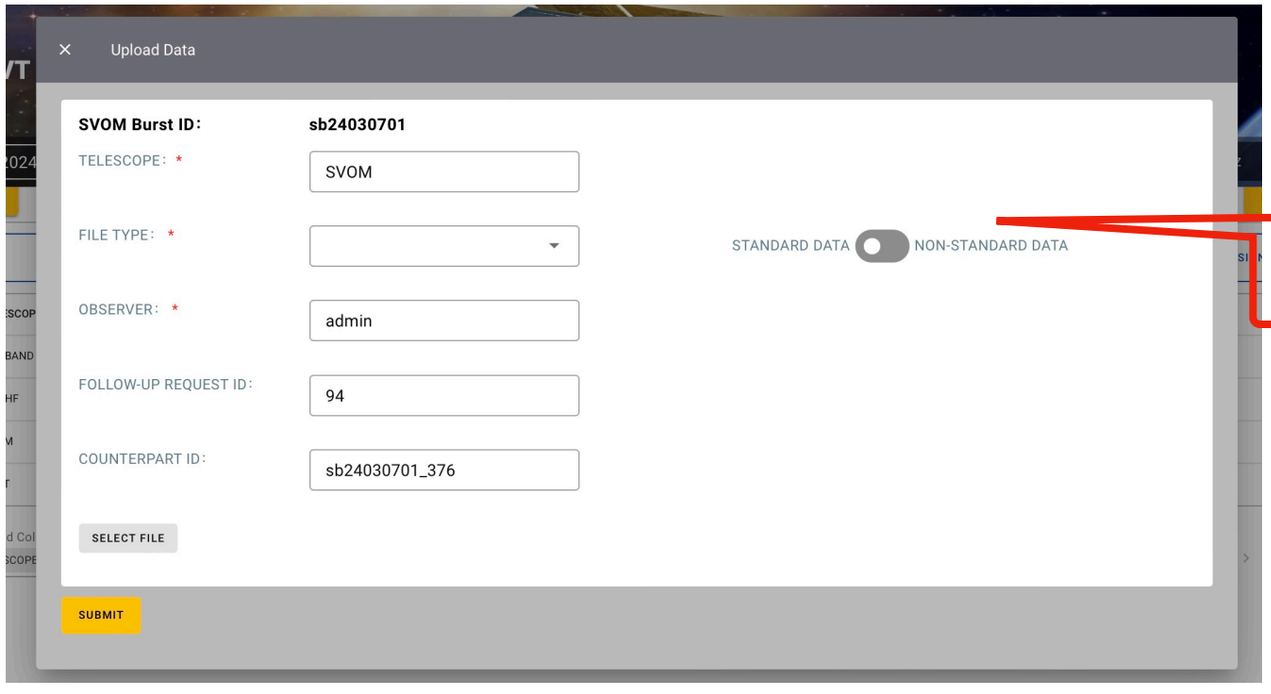
The “OBSERVATION” tab lists the observations made for this GRB. If the value of “DATA” is “Y”, some data are available for BA to check. The image can be displayed. If it is a “fits” file, an interactive tool is provided for BA to see details.

To open the identification page, select the “IDENTIFY COUNTERPART” action.

Optical counterpart identification



Click fits file in DS9

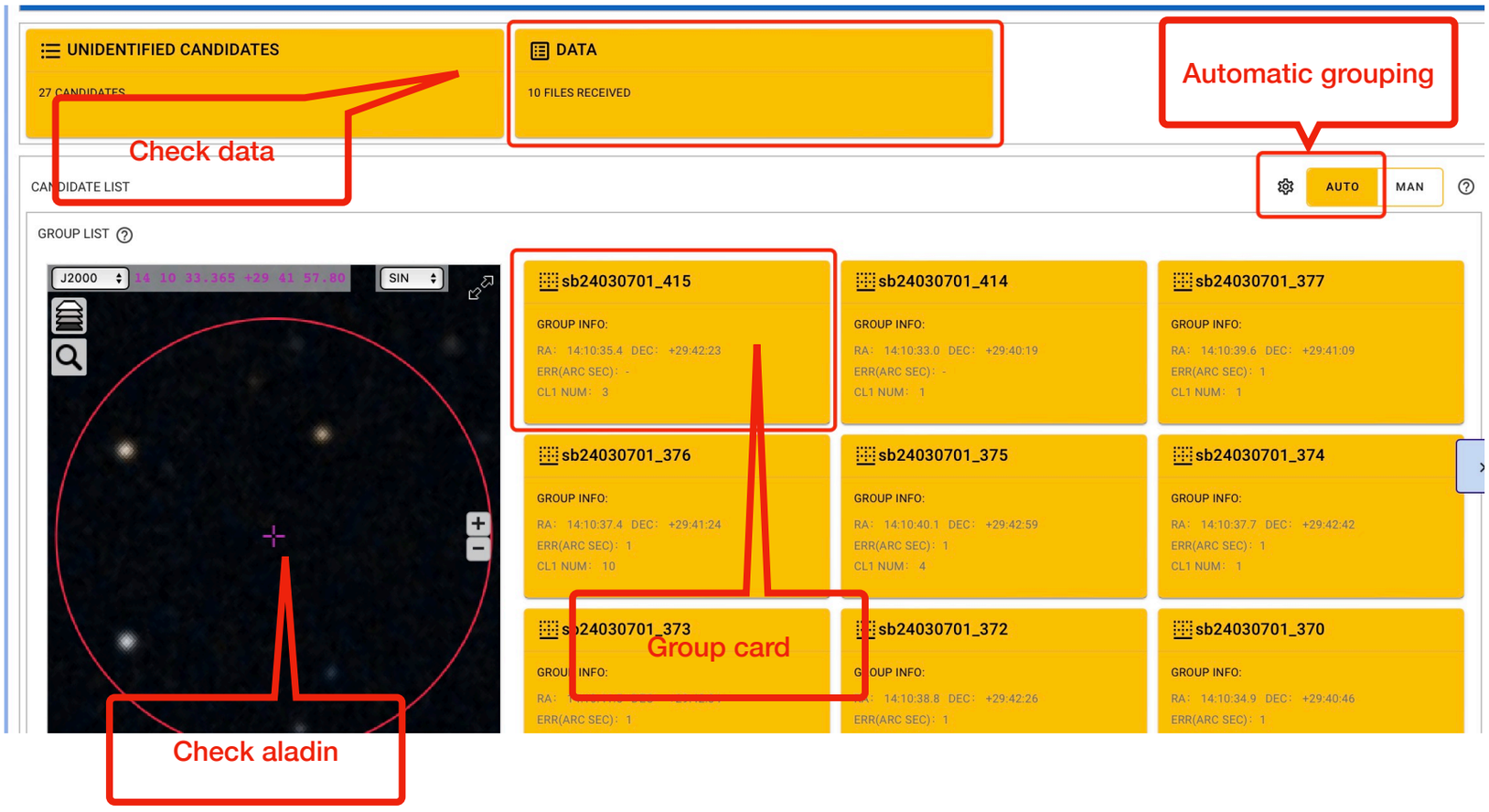


Date upload

1. Check observation and data
2. Open identification page
3. Automatic grouping
4. Manual grouping
5. Manage counterpart
6. Identified counterpart list

BA can upload data. Many types of files are allowed

Optical counterpart identification



1. Check observation and data
2. Open identification page
3. Automatic grouping
4. Manual grouping
5. Manage counterpart
6. Identified counterpart list

One source in different images of different telescopes can be detected as different sources (CL1s). Therefore, the CL1s should be firstly grouped automatically based on their position. Each group card should the information of one source. Click the group card to check the information.

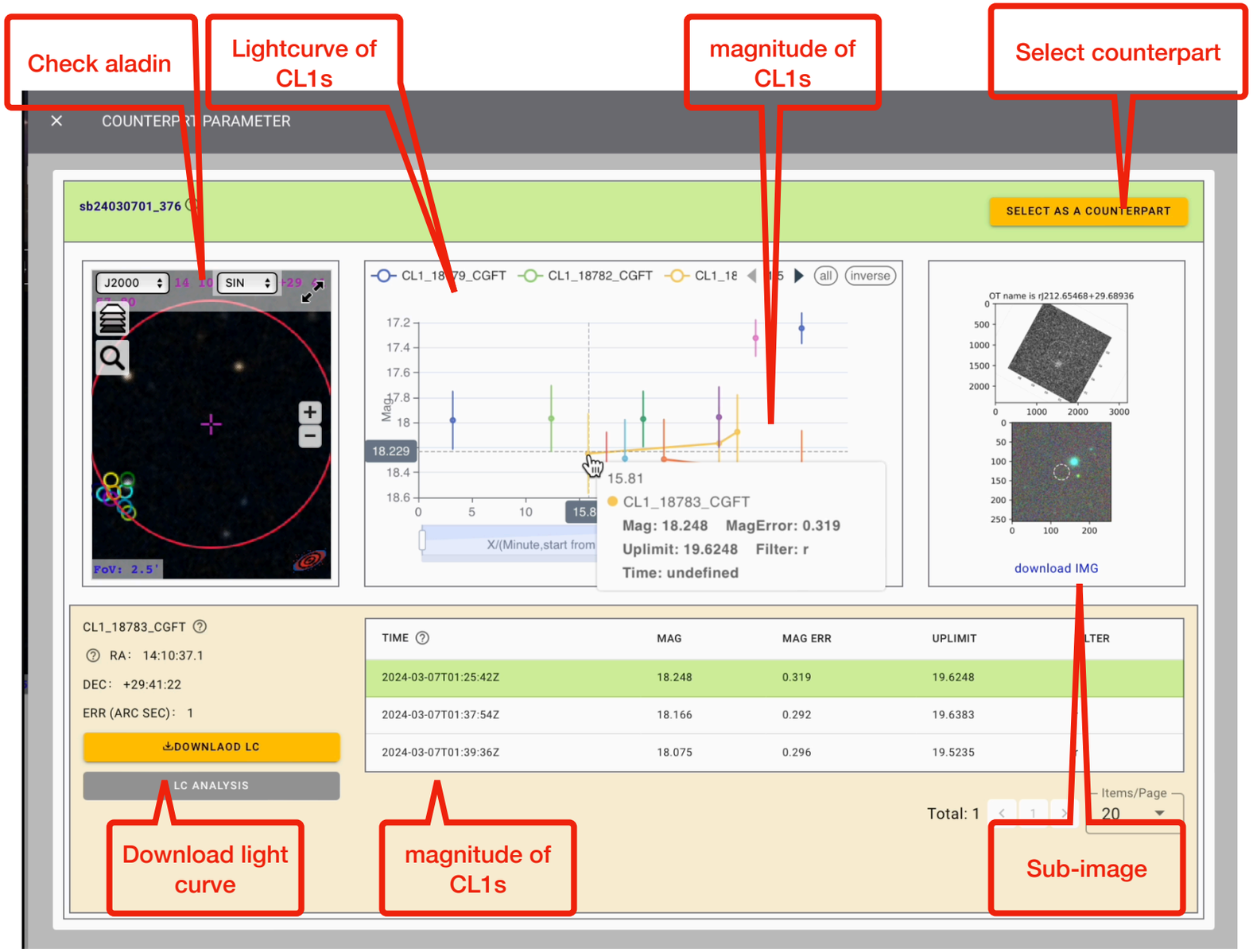
To see what data is currently available, click “DATA” card.

Optical counterpart identification

1. Check observation and data
2. Open identification page
3. Automatic grouping
4. Manual grouping
5. Manage counterpart
6. Identified counterpart list

In the “DATA” card, data status of each telescope is given. The “STANDARD DATA” means the data is decoded and is visualized in the BA tools. The fits image and upper limit magnitude of the image are provided when the “IMAGE” is “true”.

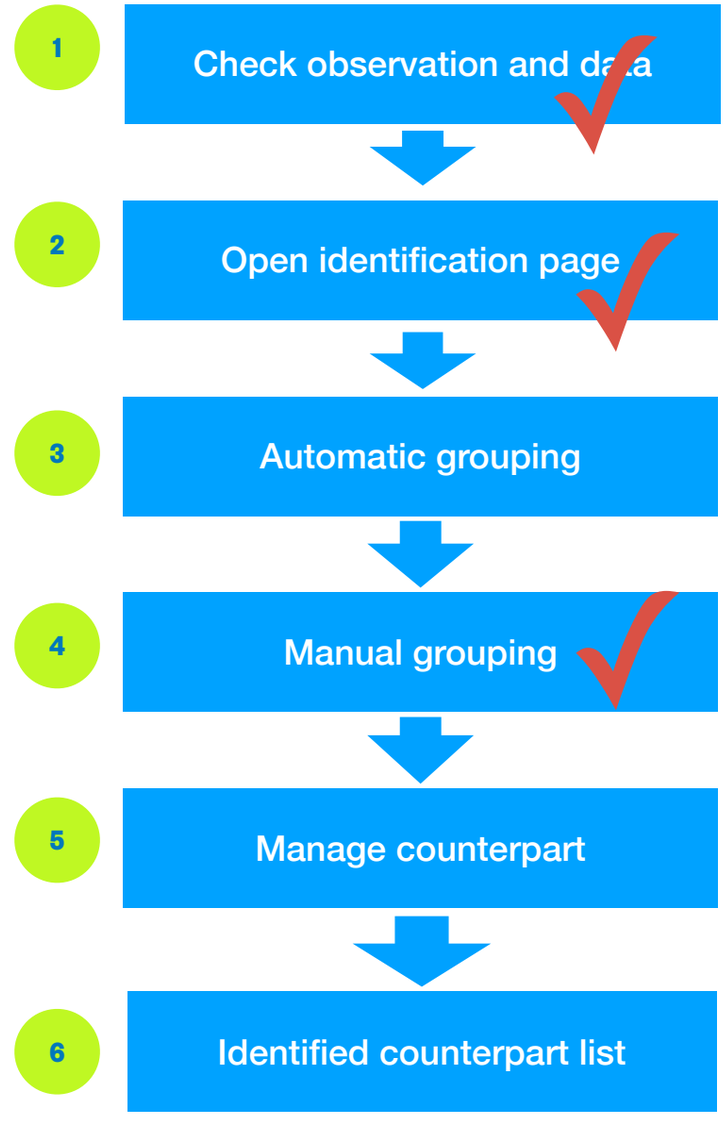
Optical counterpart identification



1. Check observation and data
2. Open identification page
3. Automatic grouping
4. Manual grouping
5. Manage counterpart
6. Identified counterpart list

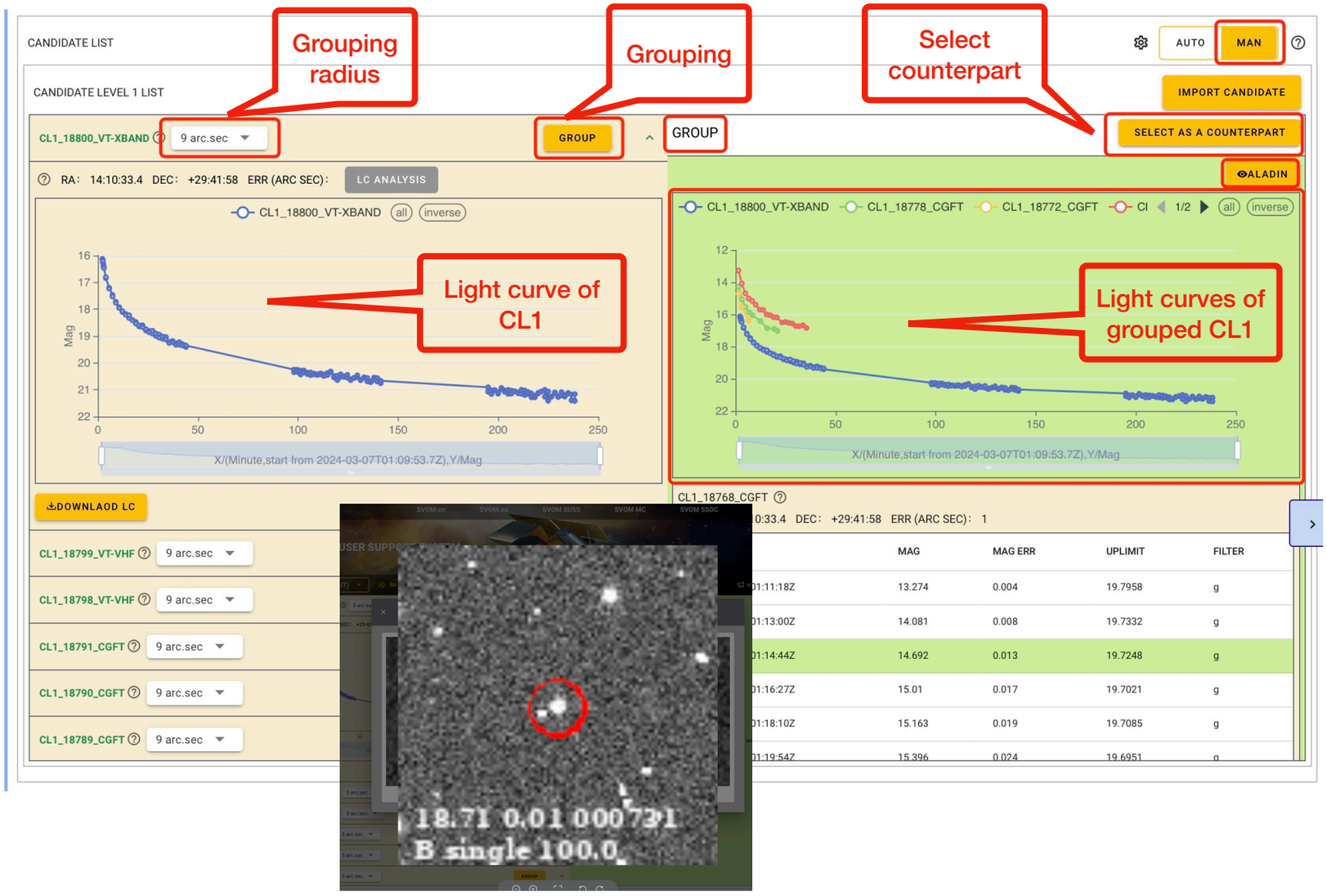
After opening the “Group Card”, all CL1s considered as this source are shown in one page. The aladin shows their position. The light curves show their variable features. The sub-image show their morphologies. BA can decide whether this source is the optical counterpart of the GRB. If yes, click “SELECT AS A COUNTERPART” to submit.

Optical counterpart identification



If BA decides to check the information of CL1 and to find the nearest CL1s by oneself, BA can choose to using “MAN grouping”. In this page, all CL1 are listed.

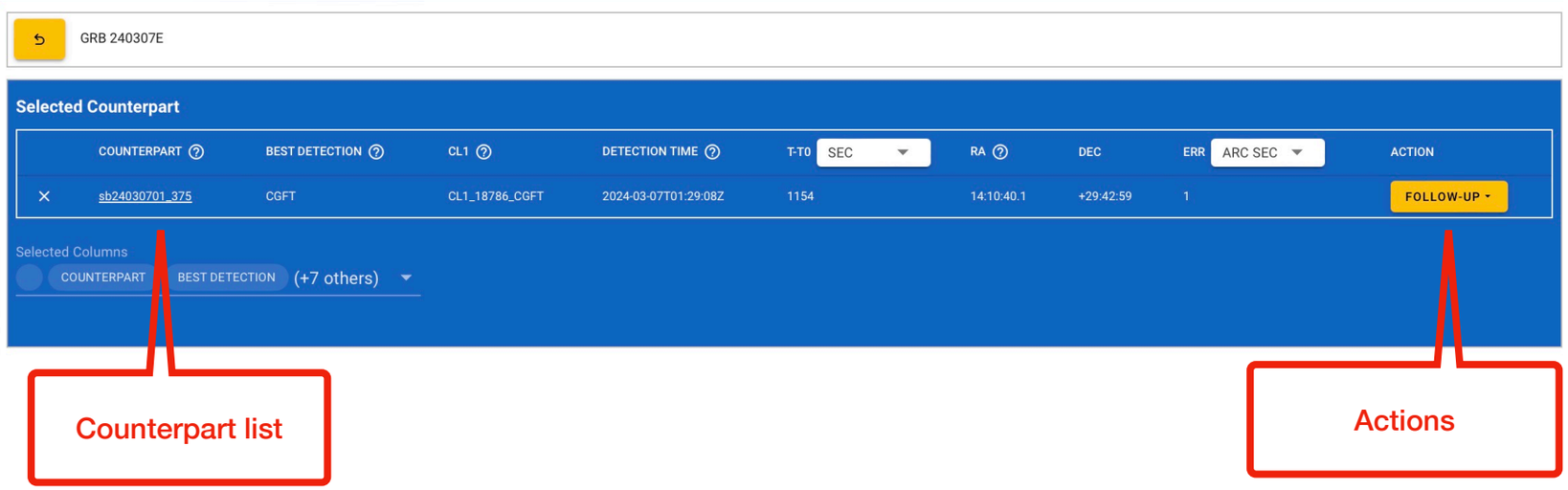
Optical counterpart identification

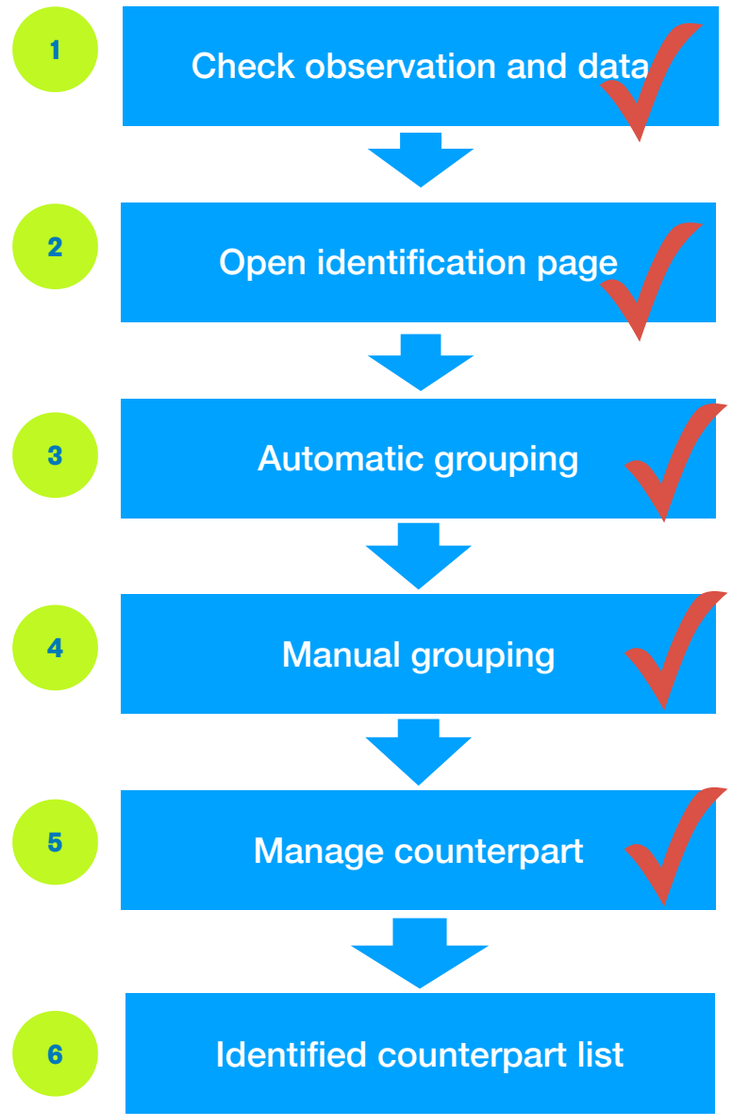


1. Check observation and data
2. Open identification page
3. Automatic grouping
4. Manual grouping
5. Manage counterpart
6. Identified counterpart list

To click the CL1, BA can see the light curve of it. Click the dot in the light curve to show the sub-image. BA can choose the grouping radius and make grouping. The result is shown in the right side. The light curves of all CL1 in the same group is displayed for comparison. BA can decide whether this source is the optical counterpart of the GRB. If yes, click “SELECT AS A COUNTERPART” to submit.

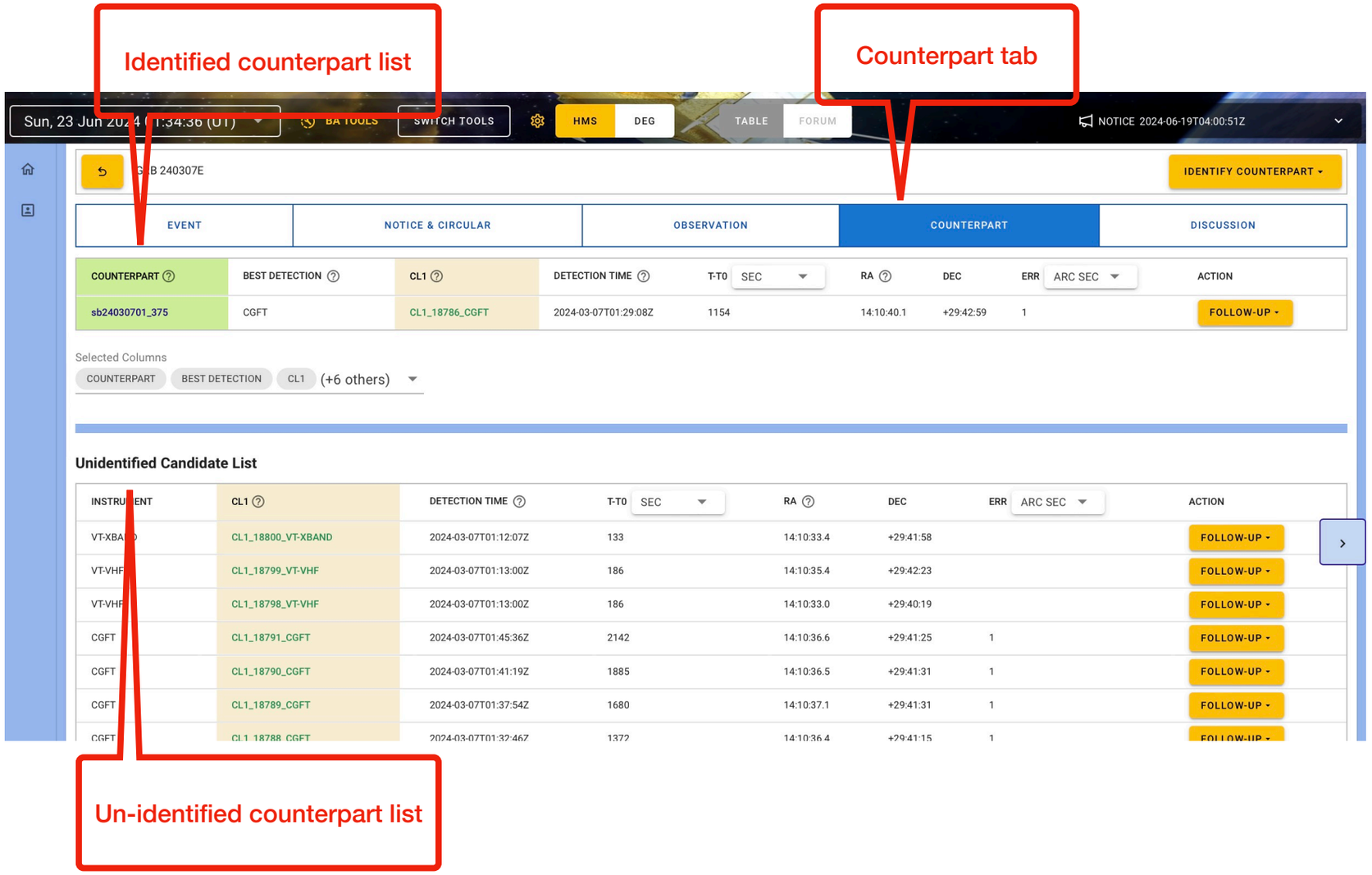
Optical counterpart identification





The identified counterparts are listed in the Selected Counterpart table. BA can start the procedures of follow-up observation, notice generation and circular generation by selecting actions in the right side.

Optical counterpart identification



1. Check observation and data
2. Open identification page
3. Automatic grouping
4. Manual grouping
5. Manage counterpart
6. Identified counterpart list

The identified counterparts are listed in the COUNTERPART tab of “Event” page. The un-identified CL1 are also listed in the same page.

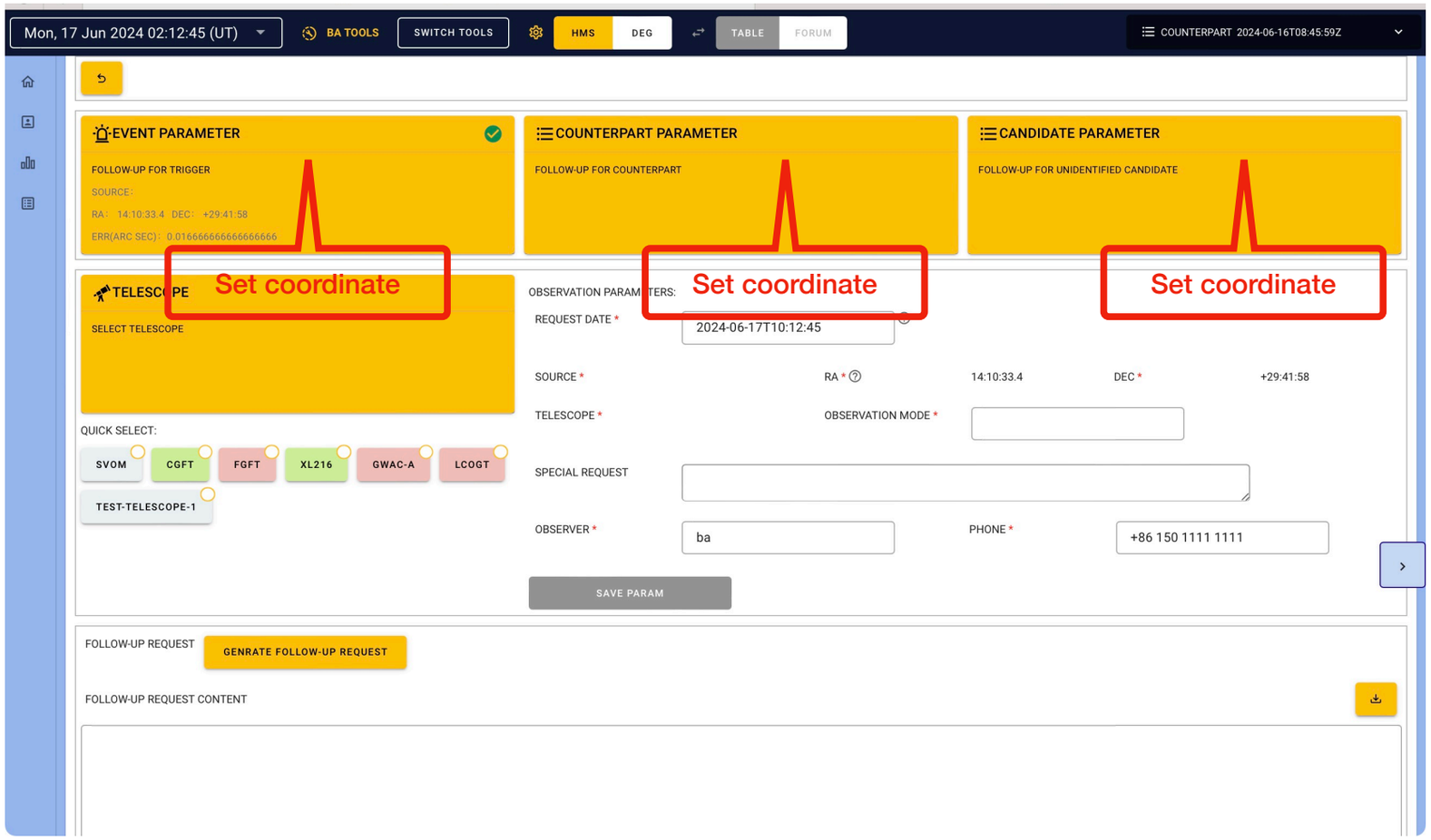
The CSC BA tools provide different ways to coordinate the follow-up observation with different types of telescopes.

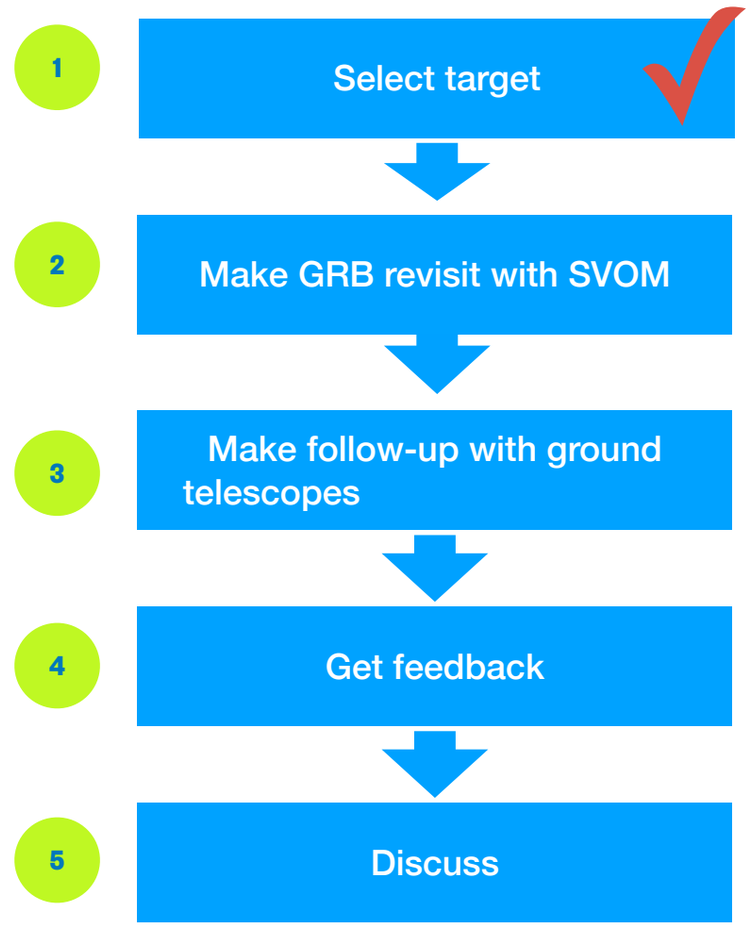
GRB: coordinate follow-up observations

For BAs from both sides, coordination of follow-up observations are very important jobs during their duty.

The follow-up facilities can be classified into four groups: 1. SVOM, 2. ground automatic telescopes, 3. ground semi-automatic telescopes, 4. ground manual telescopes. For different telescopes, the procedures are not same. The following section shows how to deal with different cases

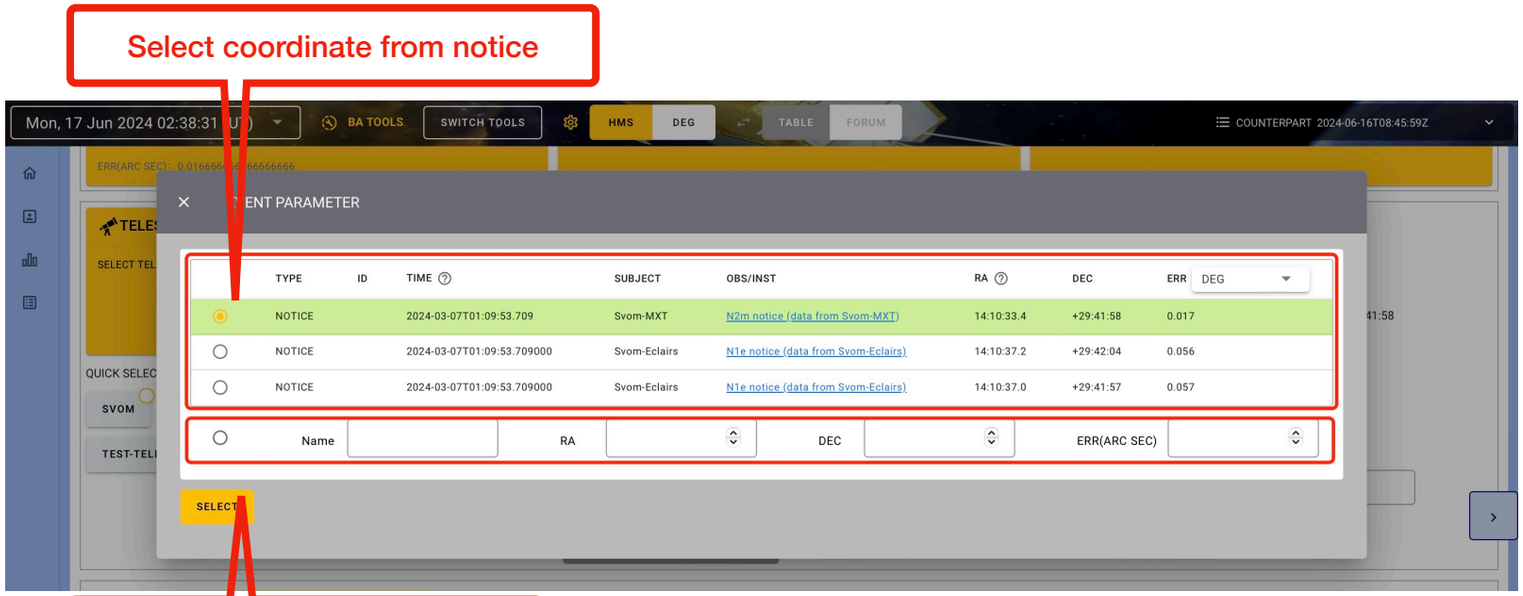
Coordinate follow-up observations





The first step to make a follow-up observation is to set the coordinates to point. There are three scenarios: 1. If BA needs to observe the GRB position when no counterpart is identified yet. 2. The counterpart is identified, BA wants to organize follow-up observations with multiple telescopes. 3. Non-credible counterpart is identified, but some interesting candidates detected.

Coordinate follow-up observations

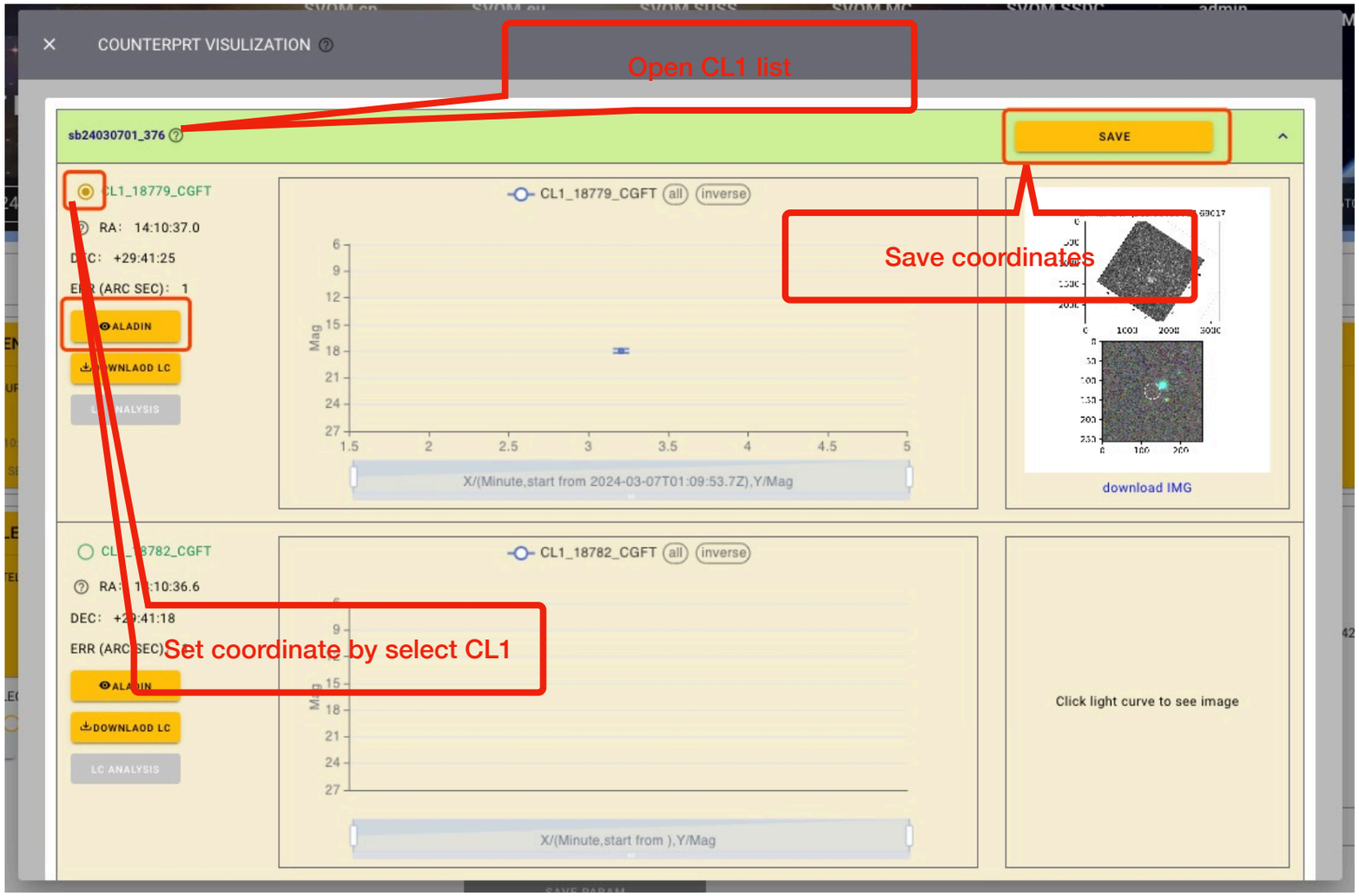


1. Select target
2. Make GRB revisit with SVOM
3. Make follow-up with ground telescopes
4. Get feedback
5. Discuss

For the scenario 1, click “EVENT PARAMETER” card. All notices are shown, BA can select coordinates from them. If the coordinates are not accurate enough, BA can manually input the coordinates.

After the coordinates are set, they will be shown in the card.

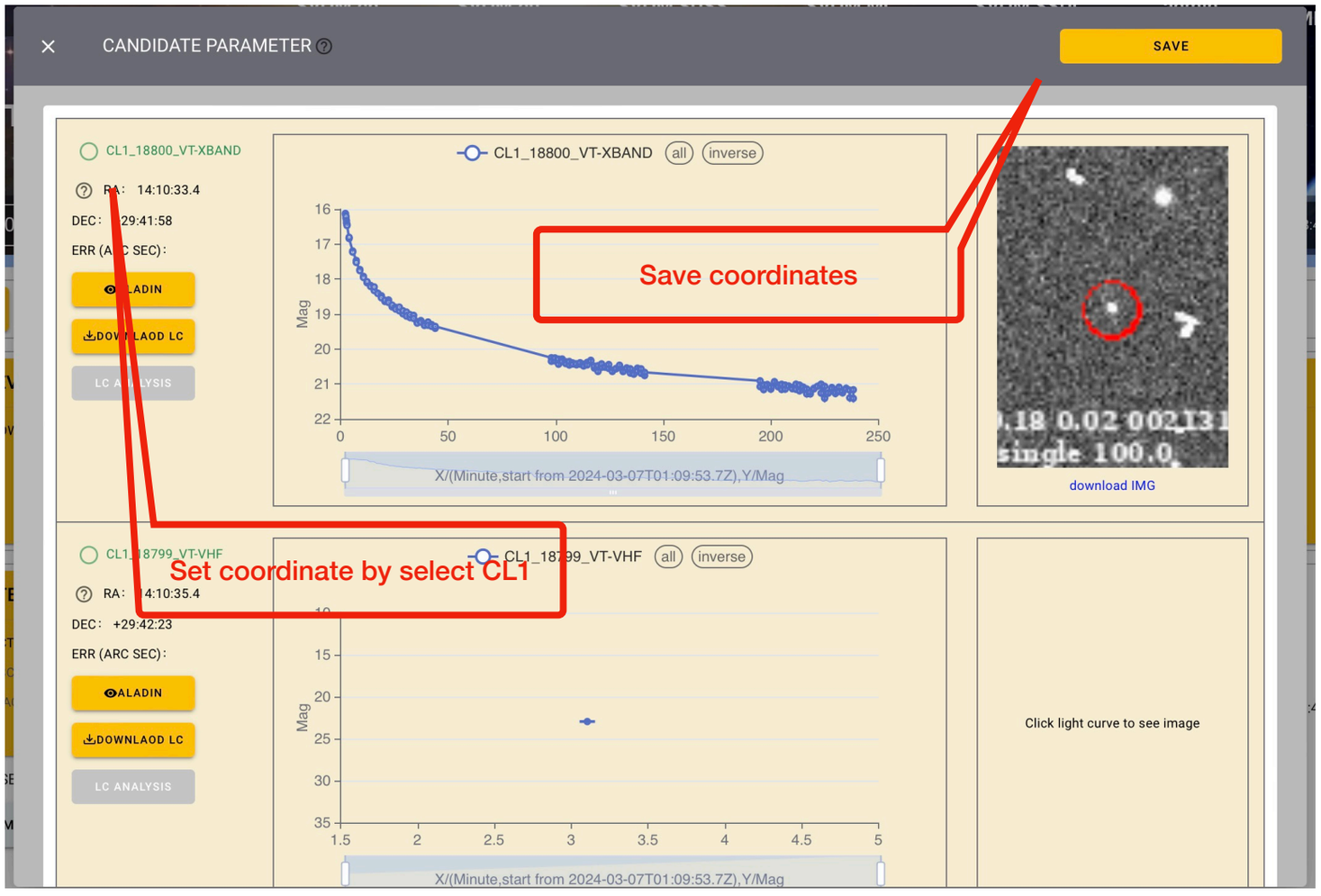
Coordinate follow-up observations



1. Select target
2. Make GRB revisit with SVOM
3. Make follow-up with ground telescopes
4. Get feedback
5. Discuss

For the scenario 2, click “COUNTERPART PARAMETER” card. BA need to select coordinates from a CL1. Since there are several CL1s for one counterpart, BA must decide the CL1 with best localization.

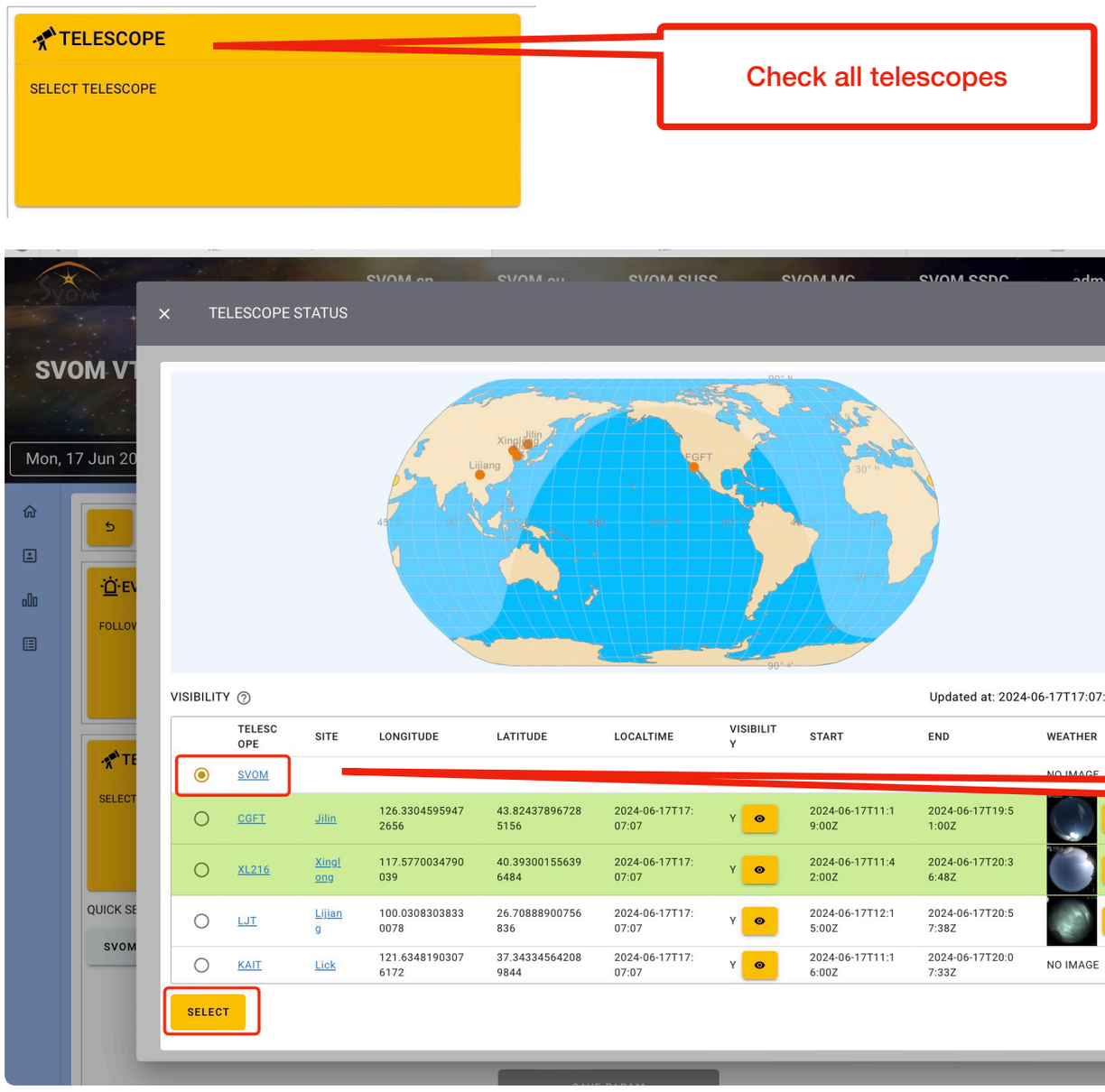
Coordinate follow-up observations



1. Select target ✓
2. Make GRB revisit with SVOM
3. Make follow-up with ground telescopes
4. Get feedback
5. Discuss

For the scenario 3, click “CANDIDATE PARAMETER” card. BA need to select coordinates from the interesting CL1.

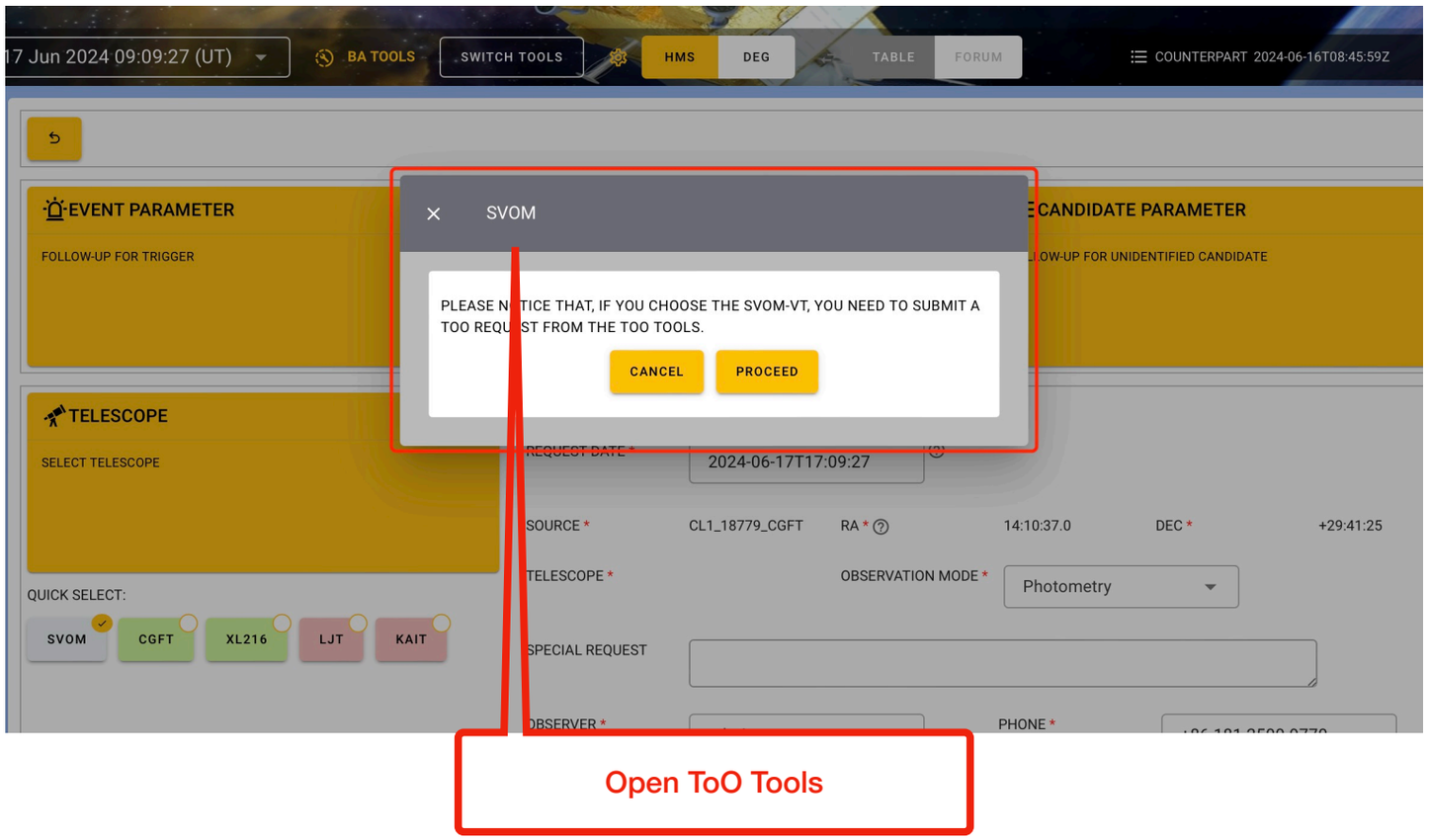
Coordinate follow-up observations



1. Select target
2. Make GRB revisit with SVOM
3. Make follow-up with ground telescopes
4. Get feedback
5. Discuss

After setting the coordinates, BA needs to choose the telescope to use. In the “TELESCOPE” card, all telescopes including SVOM satellite are listed. In current version, some telescopes are provided as examples. More telescopes will be included.

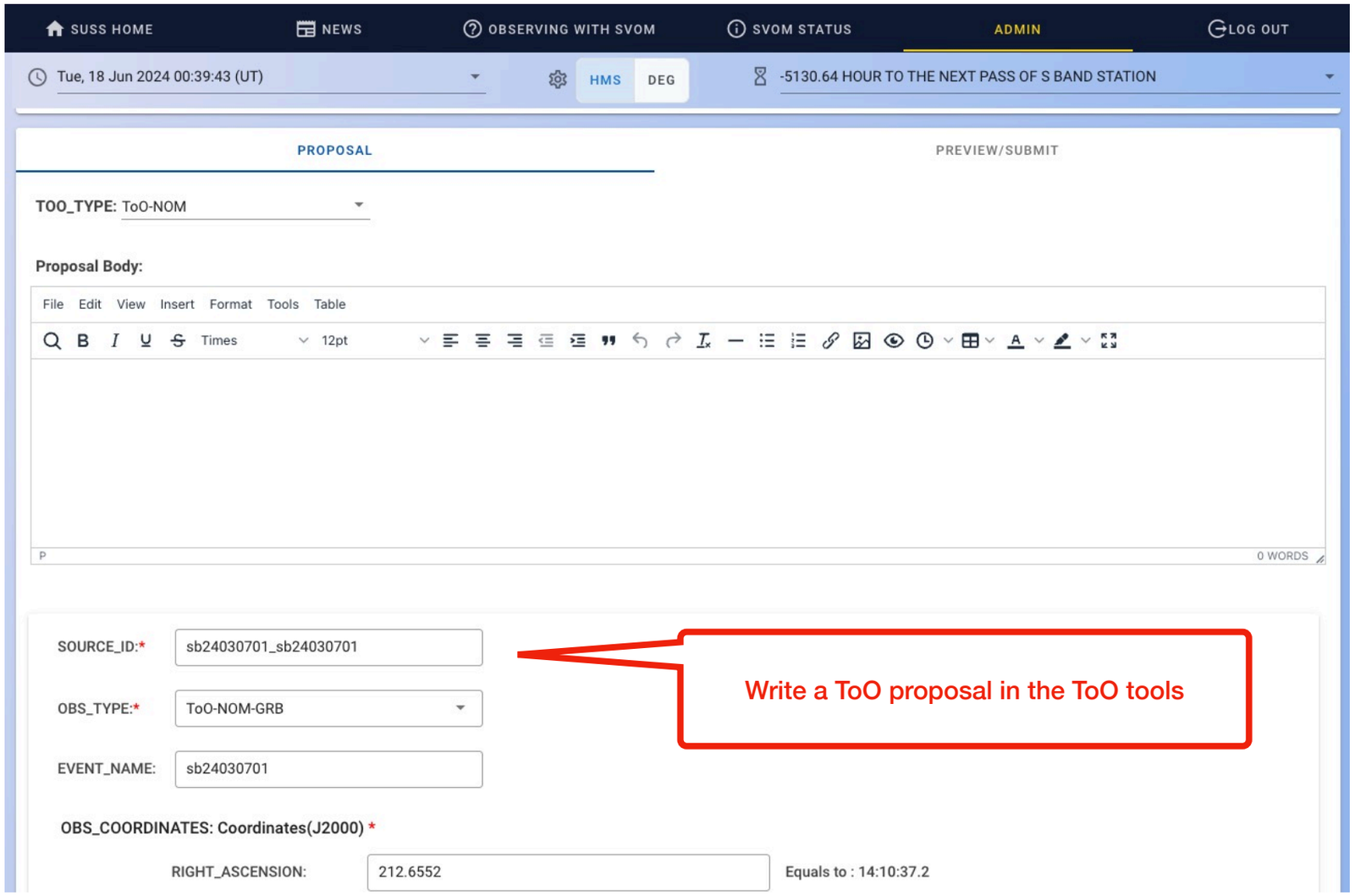
Coordinate follow-up observations



1. Select target ✓
2. Make GRB revisit with SVOM ✓
3. Make follow-up with ground telescopes
4. Get feedback
5. Discuss

To make an GRB revisit observation with SVOM (MXT/VT), BA needs to submit a ToO proposal by using the ToO tools. The proposal will be reviewed by the ToO scientist. Only the chosen one could be submitted to the OCG meeting.

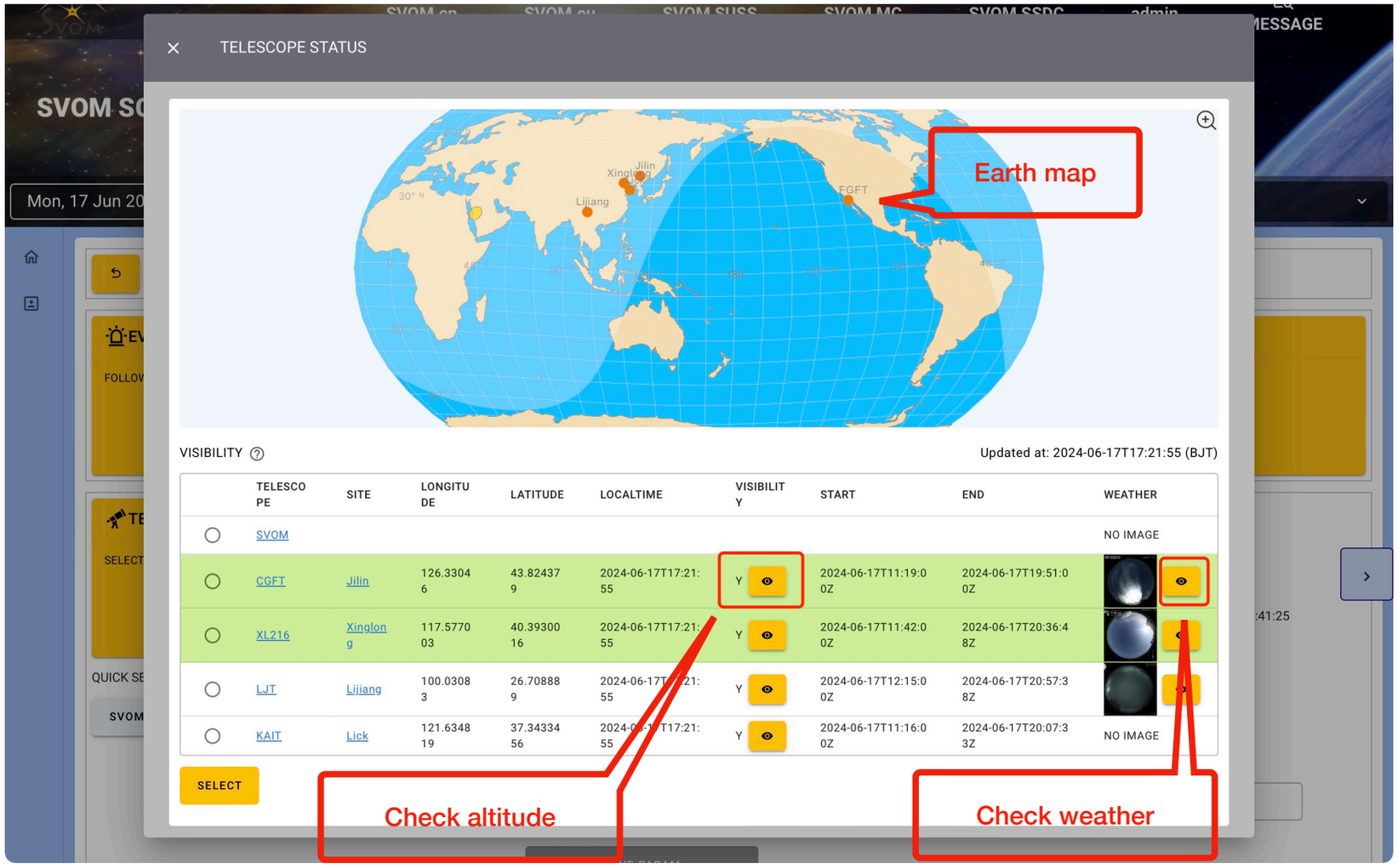
Coordinate follow-up observations



1. Select target ✓
2. Make GRB revisit with SVOM ✓
3. Make follow-up with ground telescopes
4. Get feedback
5. Discuss

A too proposal edit page is opened automatically. Some parameters will be filled automatically. BA needs to complete the proposal and submit.

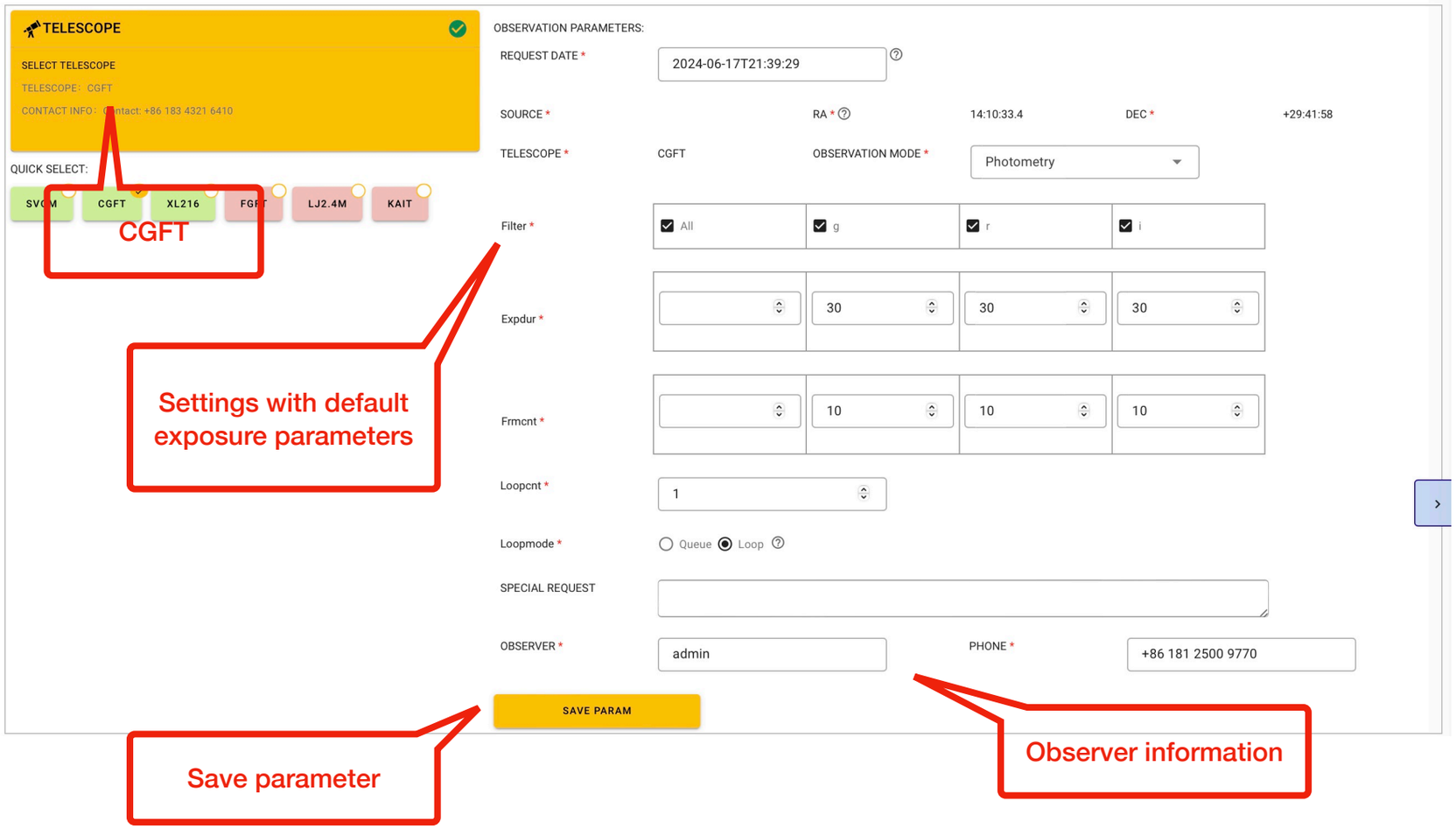
Coordinate follow-up observations



1. Select target
2. Make GRB revisit with SVOM
3. Make follow-up with ground telescopes
4. Get feedback
5. Discuss

For ground telescopes, the day/night, altitude and weather information are given. They can help BA to decide which telescope to be used.

Coordinate follow-up observations



The CGFT is an example of automatic telescope. For the automatic telescopes, the observation plan can be made in the BA tools. The telescopes starts observation immediately, if the target is visible.

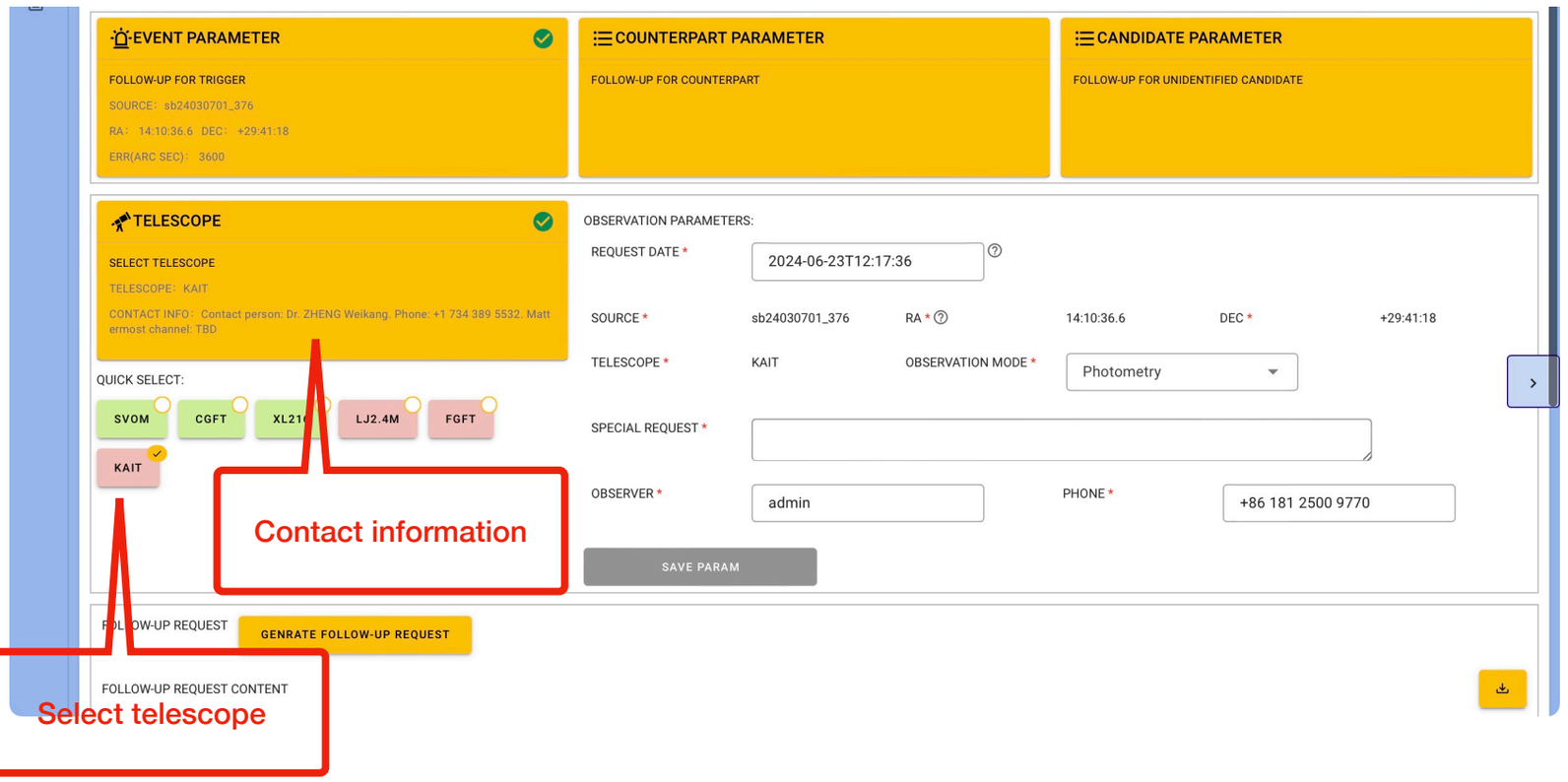
The observation parameters (especially the exposure parameters) need to be filled by BA. The default values are given, but BA can change them based on the brightness of the source.

Coordinate follow-up observations

1. Select target
2. Make GRB revisit with SVOM
3. Make follow-up with ground telescopes
4. Get feedback
5. Discuss

After completing the observation parameter of CGFT, BA need to generate the follow-up request. The parameters are automatically filled into the request. We recommend BA to check carefully before sending to the telescope.

Coordinate follow-up observations

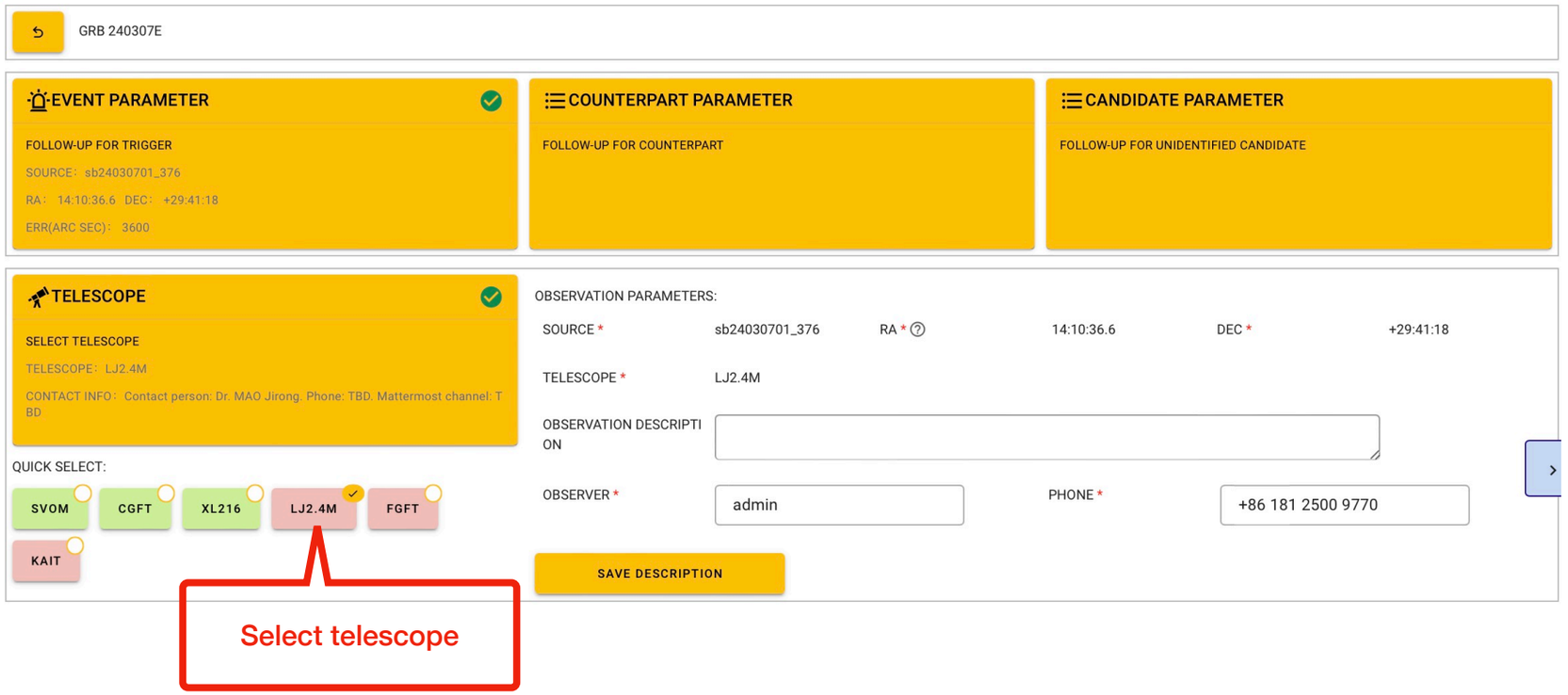


1. Select target
2. Make GRB revisit with SVOM
3. Make follow-up with ground telescopes
4. Get feedback
5. Discuss

The KAIT telescope is an example of semi-automatic telescope. Please note that: the “semi-automatic” doesn’t mean to the telescope is semi-automatic controlled. It means from the BA point of view, the telescope only accepts the target. The telescope will decide how and when to preform the observation. The time delay maybe longer than the automatic telescope. So BA may need to discuss with the contact person of the telescope to confirm the observation strategy. The contact information is shown in the “TELESCOPE” card.

During the training, both can discuss in the mattermost channel “BA training”

Coordinate follow-up observations



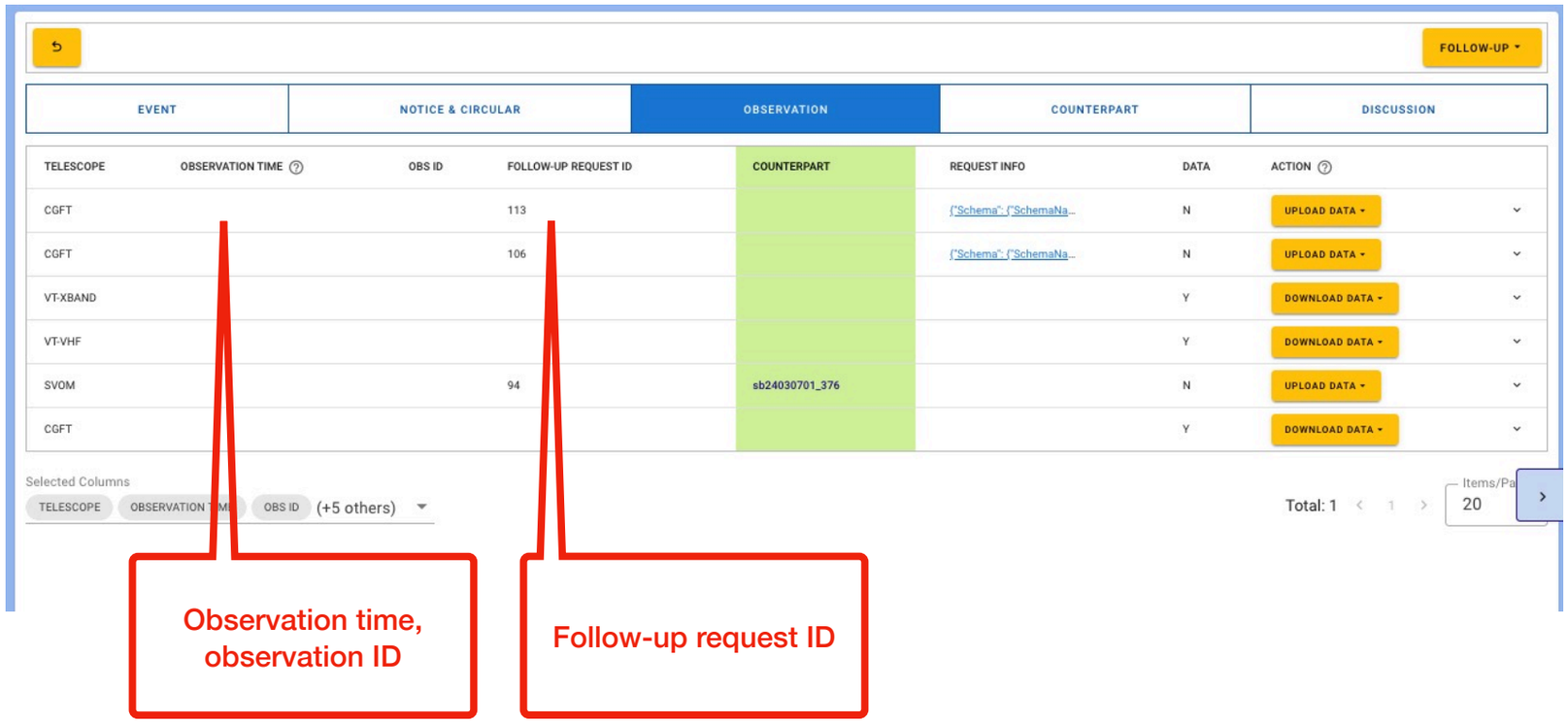
1. Select target
2. Make GRB revisit with SVOM
3. Make follow-up with ground telescopes
4. Get feedback
5. Discuss

The 2.4M telescope in Lijiang observatory is an example of manual telescope. Please note that: the “manual” doesn’t mean to the telescope is manual controlled. It only means, from the BA point of view, the telescope will not receive anything from the BA tools. BA need to directly contact the contact person of the telescope to apply the observation. The contact information can be found in the “TELESCOPE” card.

During the training, both can discuss in the mattermost channel “BA training”.

During the operation, although it is not mandatory, we still recommend BA to write the observation description in the BA tools.

Coordinate follow-up observations

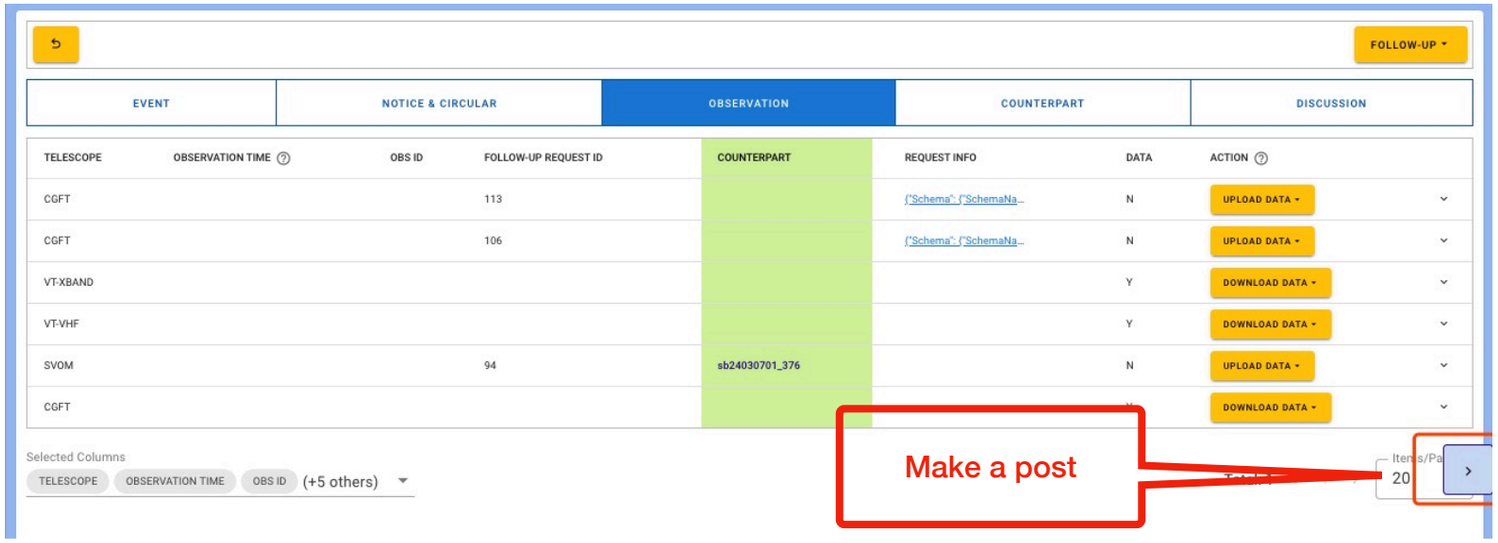


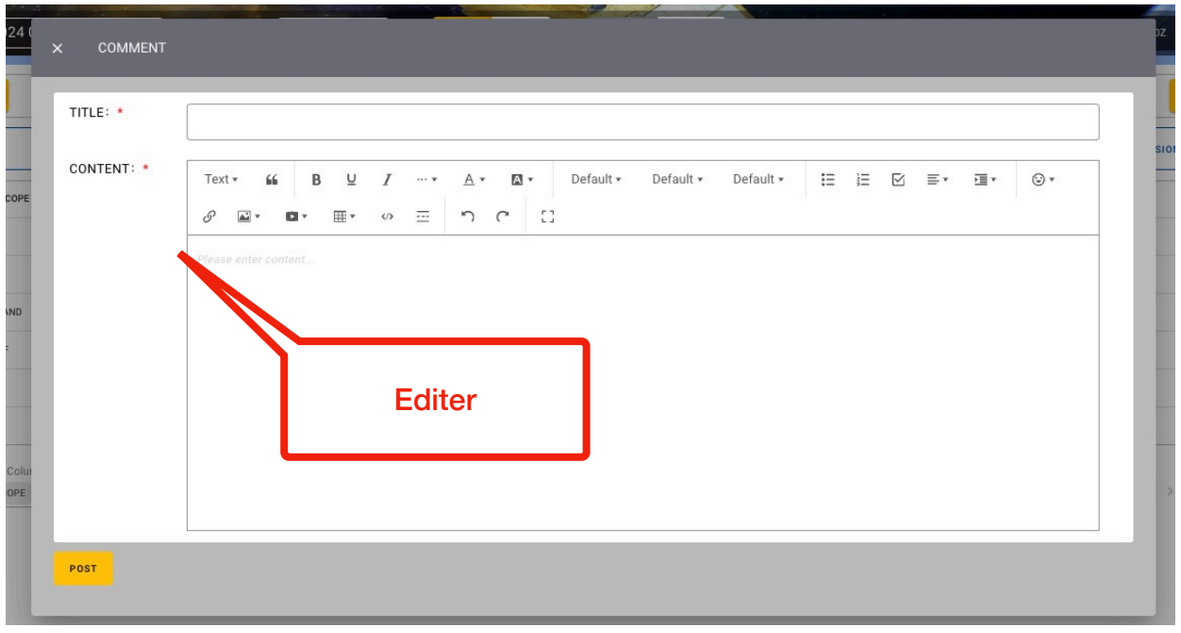
1. Select target
2. Make GRB revisit with SVOM
3. Make follow-up with ground telescopes
4. Get feedback
5. Discuss

After sending the follow-up request, it can be checked in the “OBSERVATION” tab.

For some automatic telescopes, the observation status could be sent back to the BA tools automatically, which will be shown in this tab. But this function highly relies on the telescope sides. So BA may need to contact the contact person to check the status.

Coordinate follow-up observations

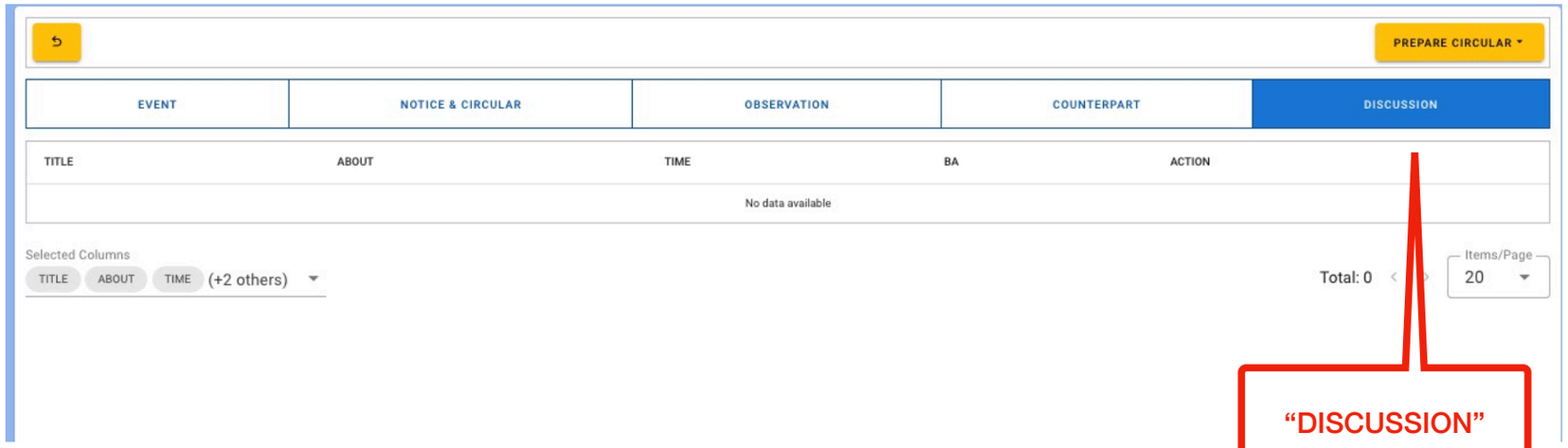




1. Select target
2. Make GRB revisit with SVOM
3. Make follow-up with ground telescopes
4. Get feedback
5. Discuss

We highly recommend all BAs to take note, make comment and discuss in the BA tools. In any page of BA tools, BA can find a button to start editing the notes. All the notes will be listed in the “DISCUSSION” tab.

Coordinate follow-up observations



1. Select target
2. Make GRB revisit with SVOM
3. Make follow-up with ground telescopes
4. Get feedback
5. Discuss

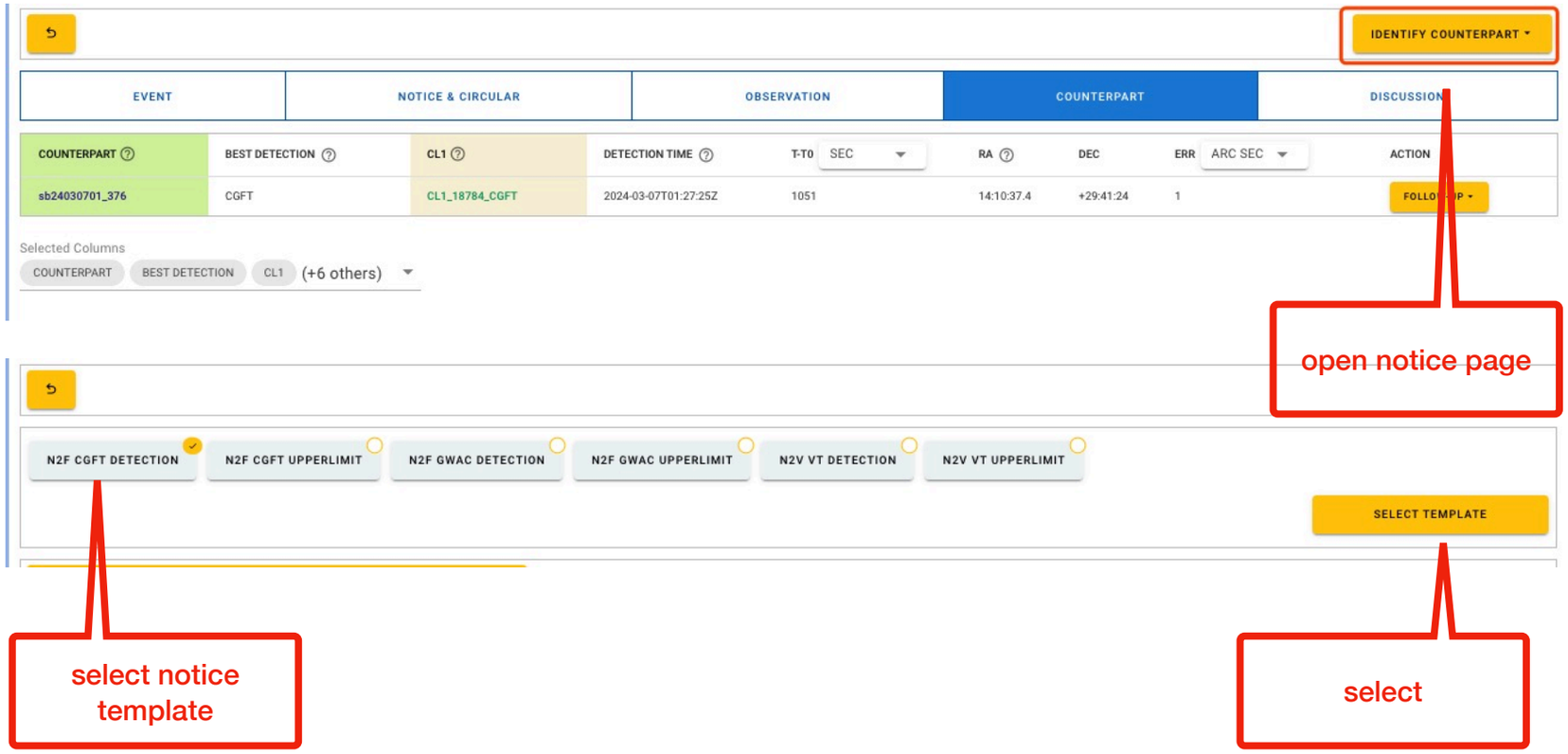
To check the notes. BA can find them in the “DISCUSSION” tab.

GRB: GCN notice

The CSC BA tools provide supports for BA to prepare notices of optical instrument.

For optical instrument, BA is responsible for the accuracy of coordinates, time and detection information in the notice. BA needs to check the information in the BA tools, fill the parameters into the GCN notice template.

GCN notice



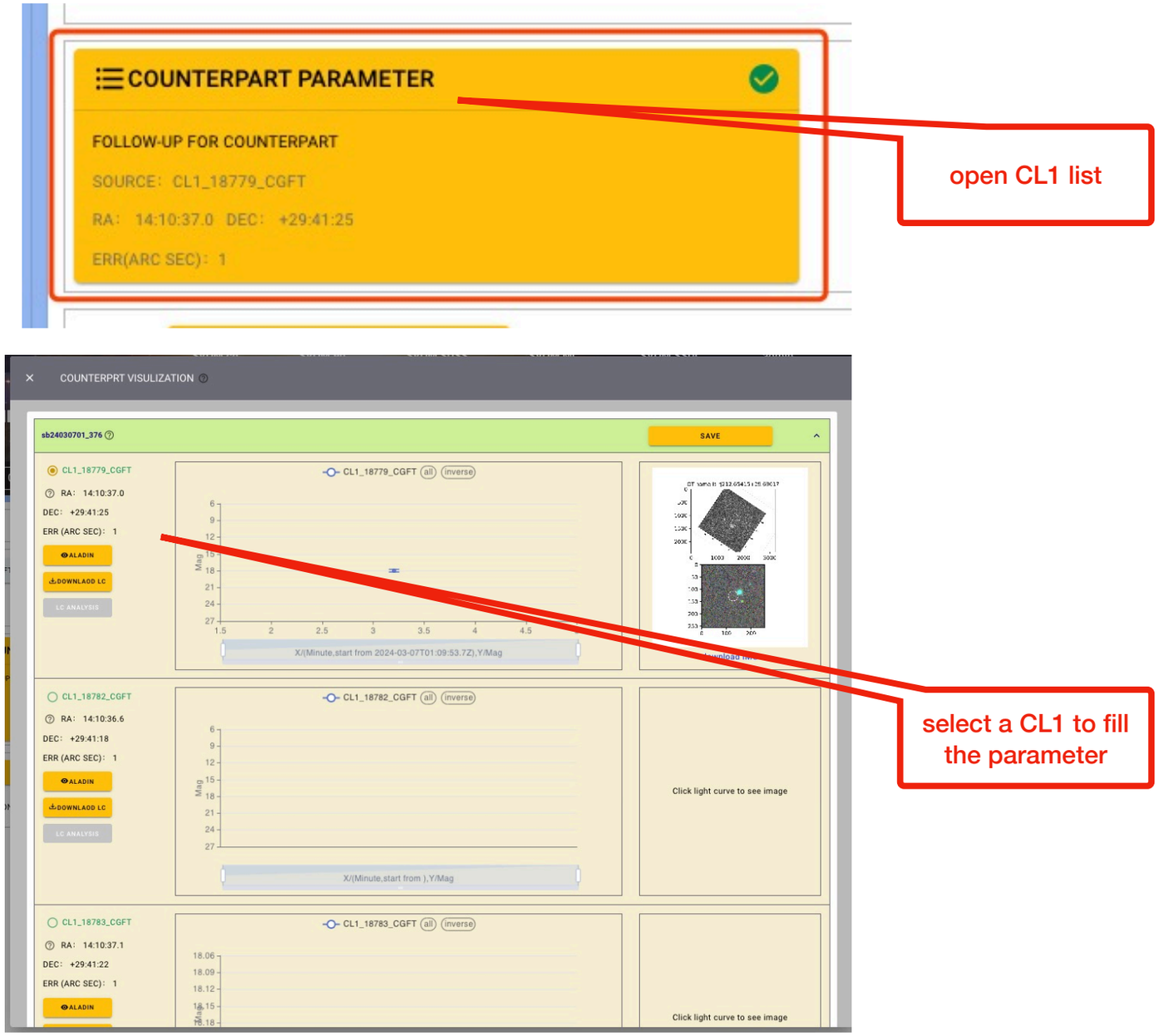
1. Select template
2. Select detection parameter
3. Generate notice
4. Submit notice

To open the notice preparation page, select the “PREPARE NOTICE” action.

In the notice preparation page, we provide several GCN notice templates. Each template is dedicated for a telescope and a given scenario.

For example, the “N2F CGFT DETECTION” template is for a counterpart detected by CGFT.

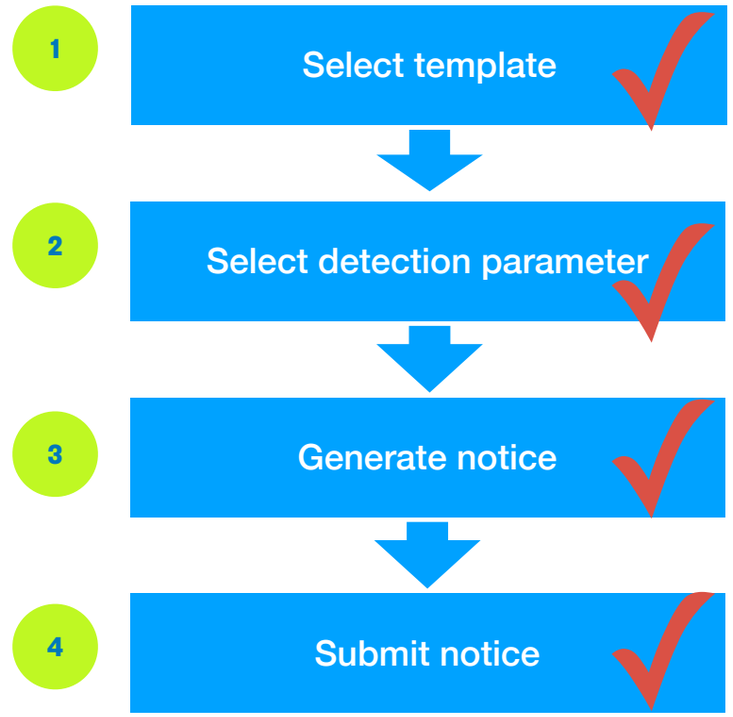
GCN notice



1. Select template
2. Select detection parameter
3. Generate notice
4. Submit notice

After selecting the “N2F CGFT DETECTION” template, a “COUNTERPART PARAMETER” is shown up. BA needs to choose the best detection to fill in the template.

GCN notice



The information (time, coordinates, magnitude etc.) from the selected CL1 will be filled automatically into the notice. The content is not editable.

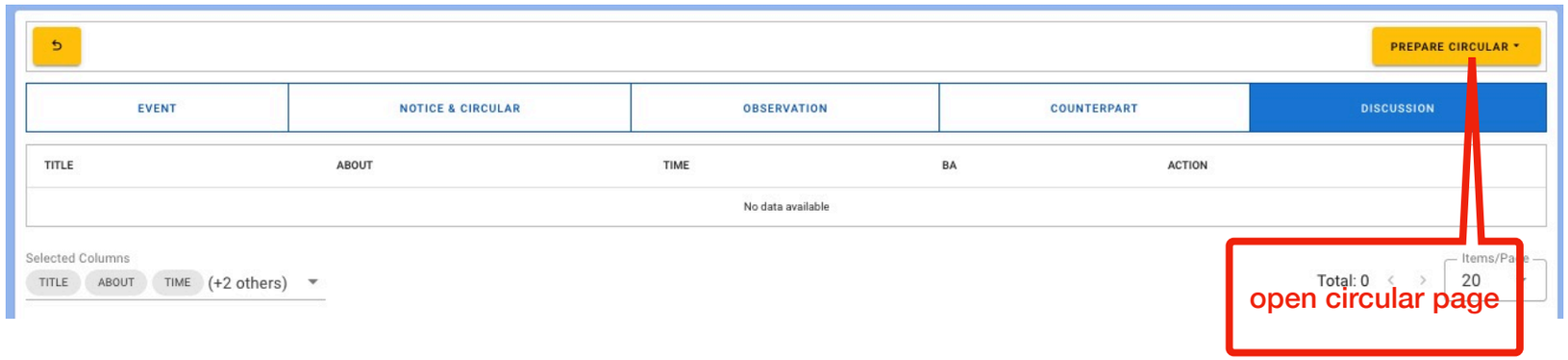
Note: during the operation, after sending the notice, the notice will not be reviewed again by anyone else. So BA must be very careful for submitting the notice.

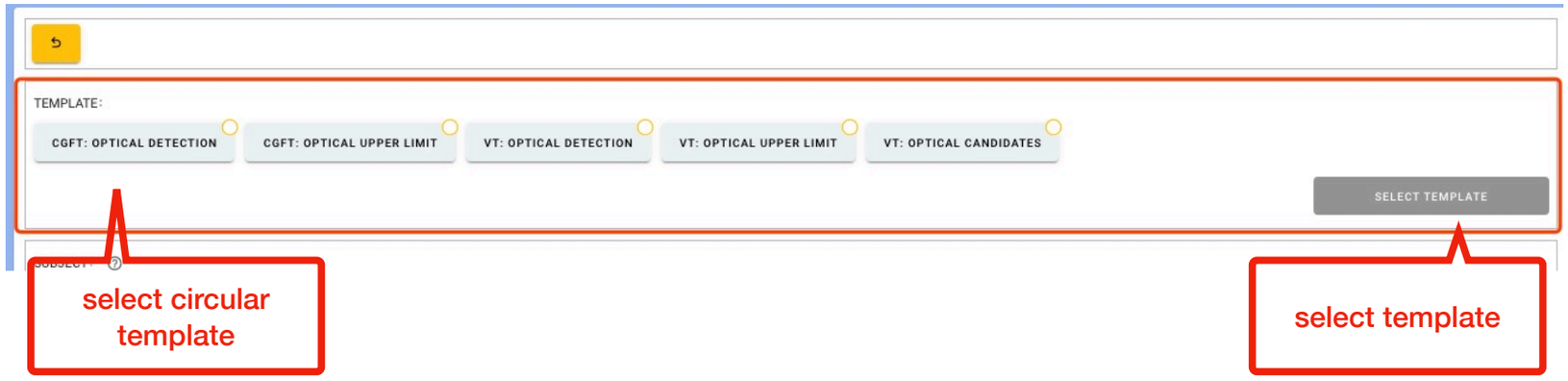
The CSC BA tools provide supports for BA to prepare circular of optical instrument.

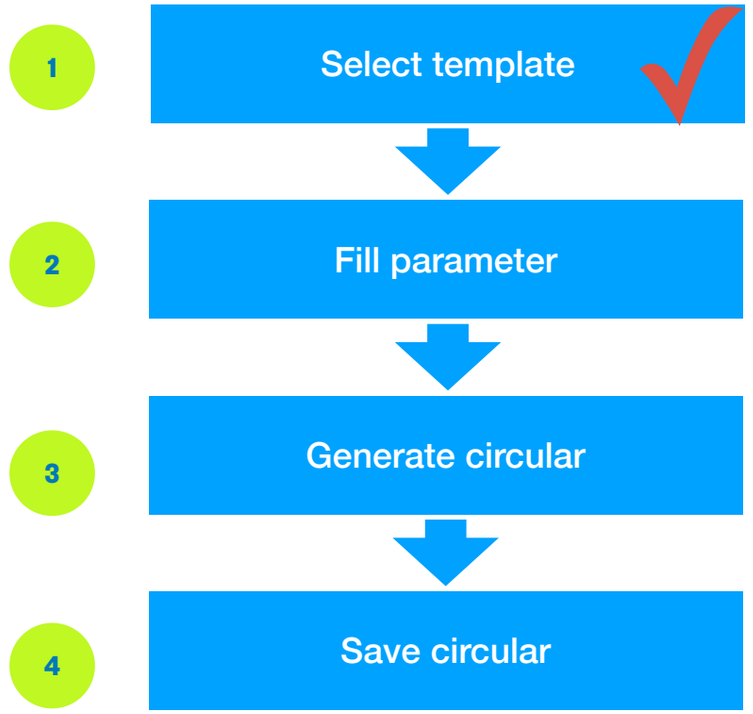
GRB: GCN circular

For optical instrument, the BA is responsible for the accuracy of information in the circular and submitting the circular. BA needs to have his/her personal account in the GCN.

GCN circular





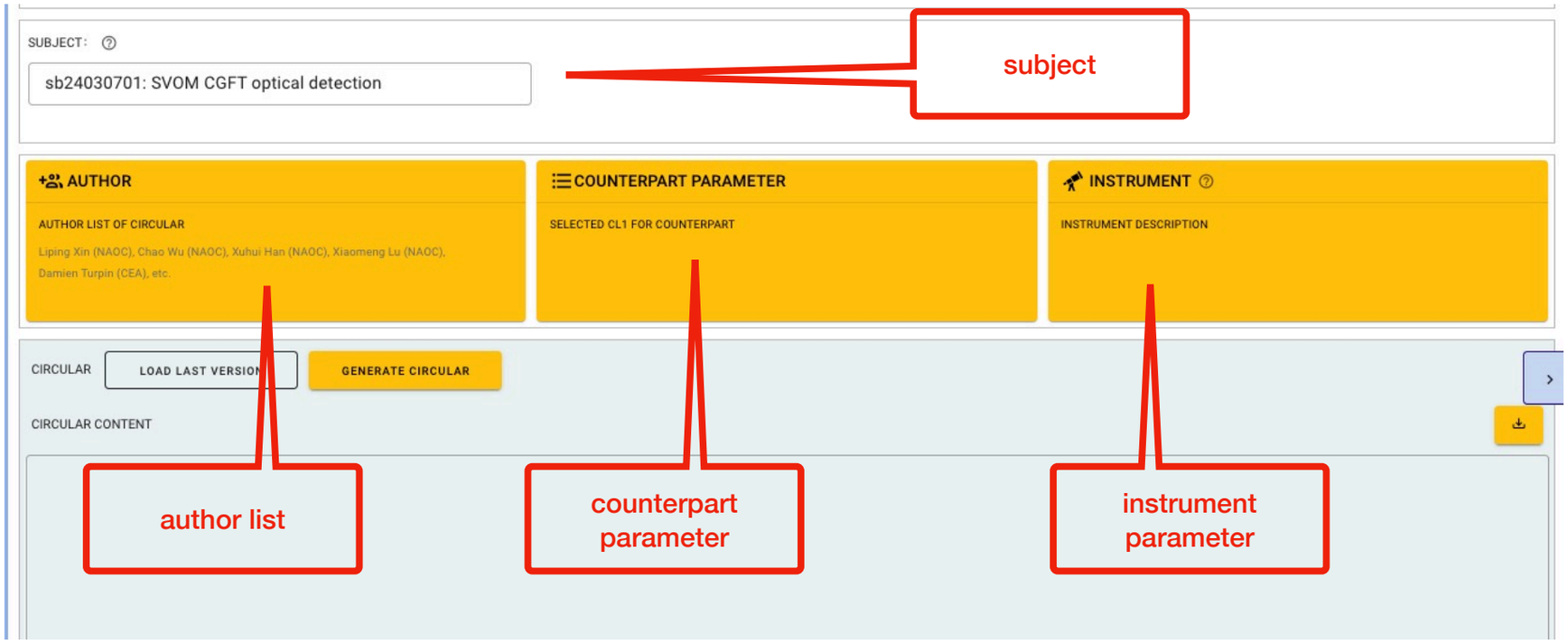


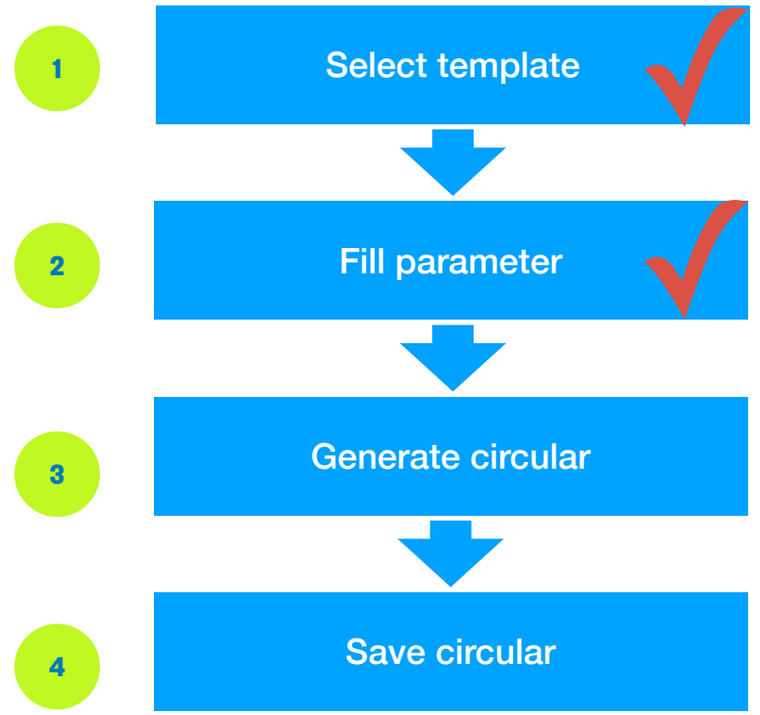
To open the circular preparation page, select the “PREPARE Circular” action.

We provide several GCN circular templates. Each template is dedicated for a telescope and a given scenario.

For example, the “CGFT OPTICAL DETECTION” template is for the successful detections made by CGFT.

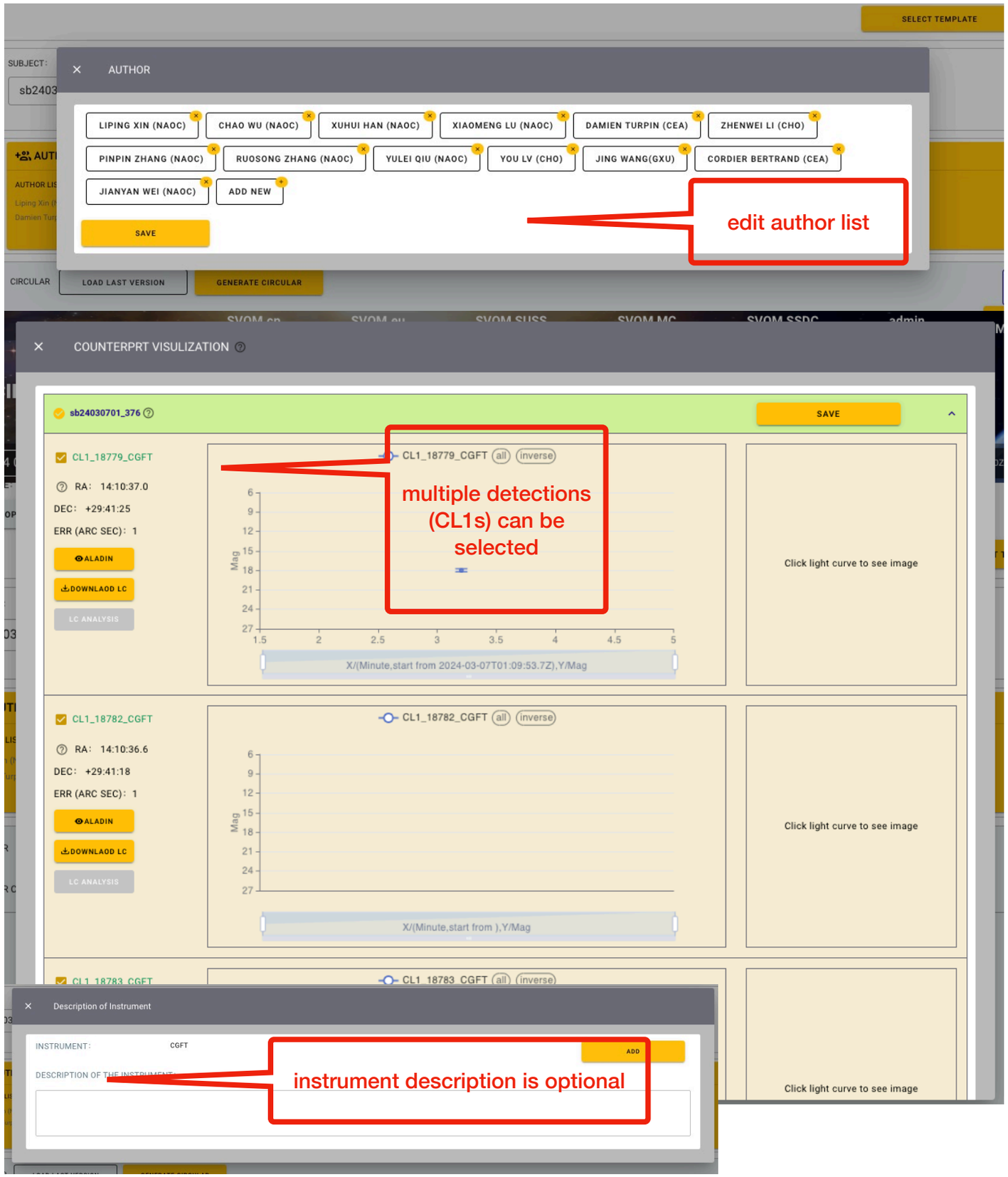
GCN circular





For different template, the content are different. For the successful detections of CGFT, the template shall contain 6 parts: SUBJECT (title), AUTHOR LIST, DESCRIPTION OF THE OBSERVATION, DESCRIPTION OF THE DETECTION, ADDITIONAL DESCRIPTION and DESCRIPTION OF THE INSTRUMENT (optional).

GCN circular



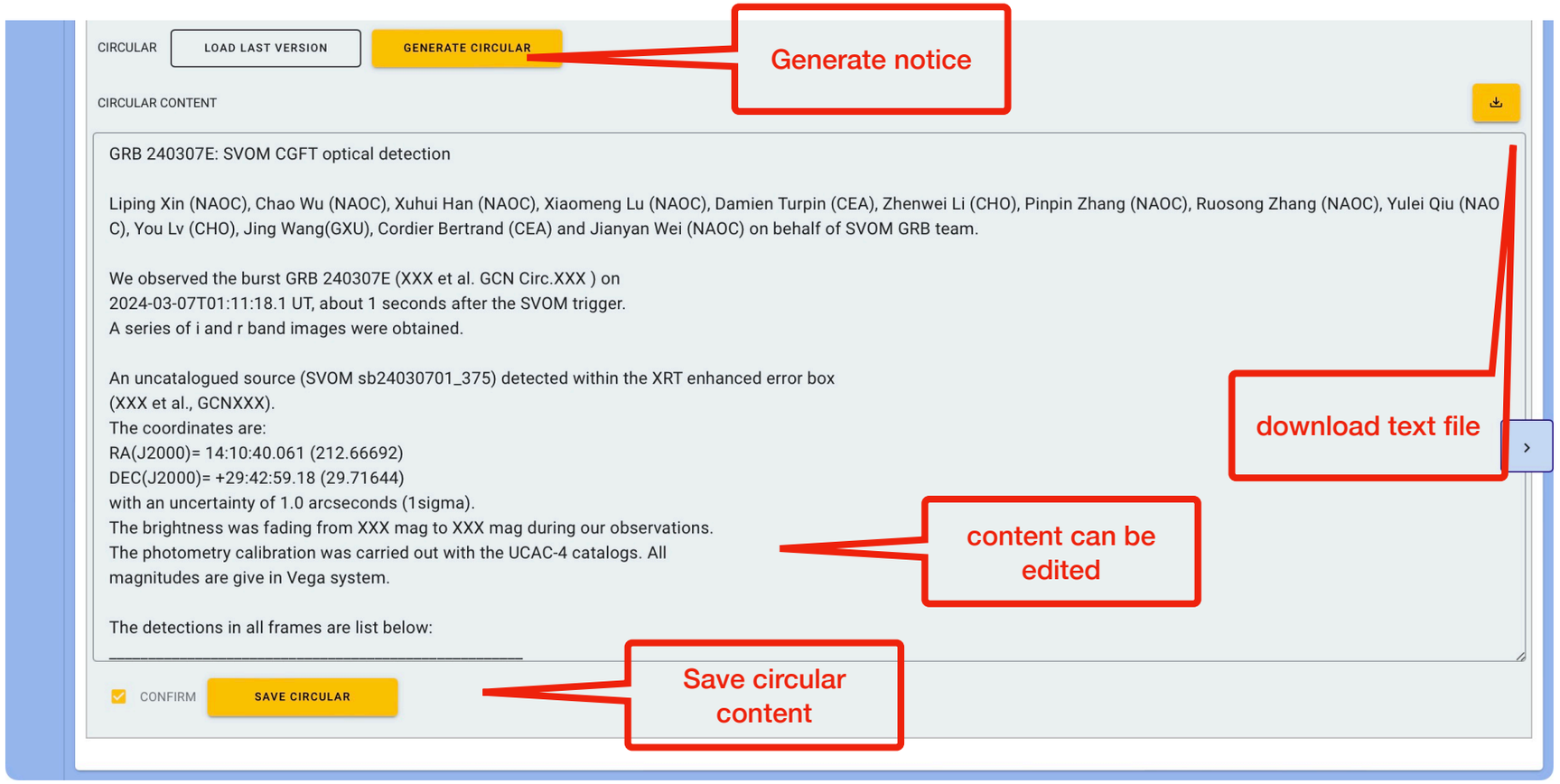
1. Select template
2. Fill parameter
3. Generate circular
4. Save circular

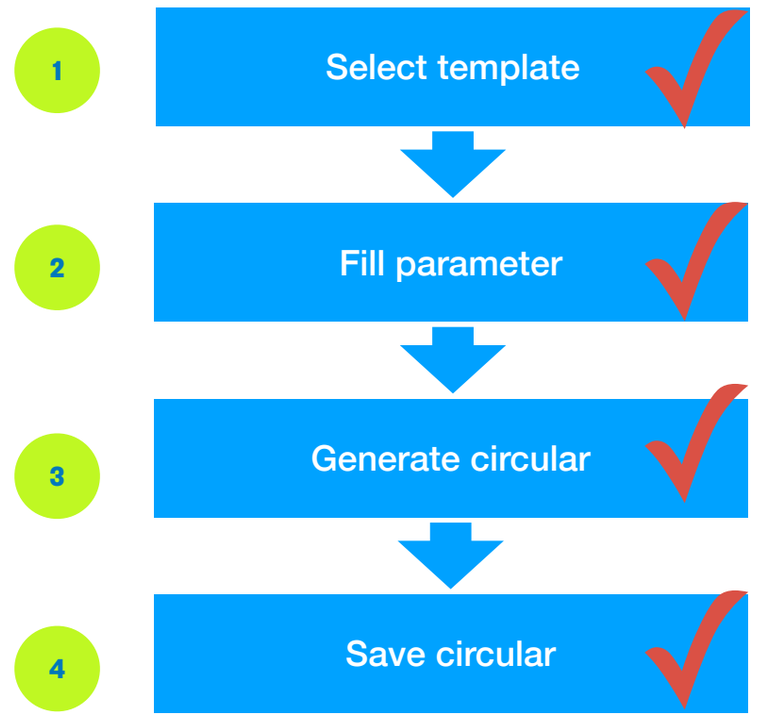
The author list can be edited.

For circulars, multiple CL1s can be selected by BA to give more detailed information, ie magnitudes in several bands.

The observation status is automatically filled.

GCN circular





Please note that, although most of parameters are automatically filled, BA still need to fill some parameters by hands and check carefully the content of circular. The content is editable.

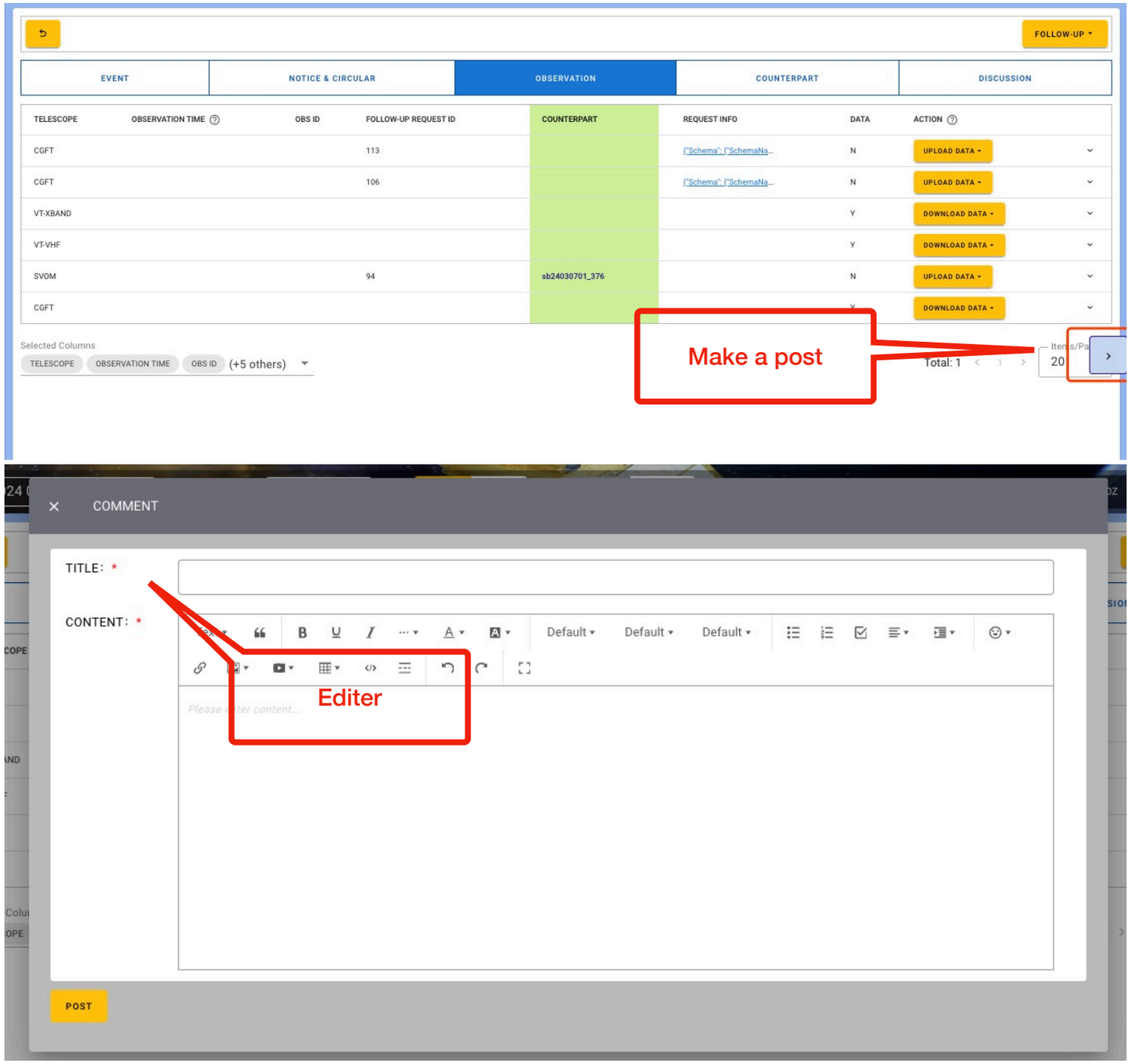
The BA needs to submit the circular to GCN using his/her personal account. But BA must save the circular by using “SAVE CIRCULAR”, so the BA tools can record the circular. Otherwise, the circular content will be lost.

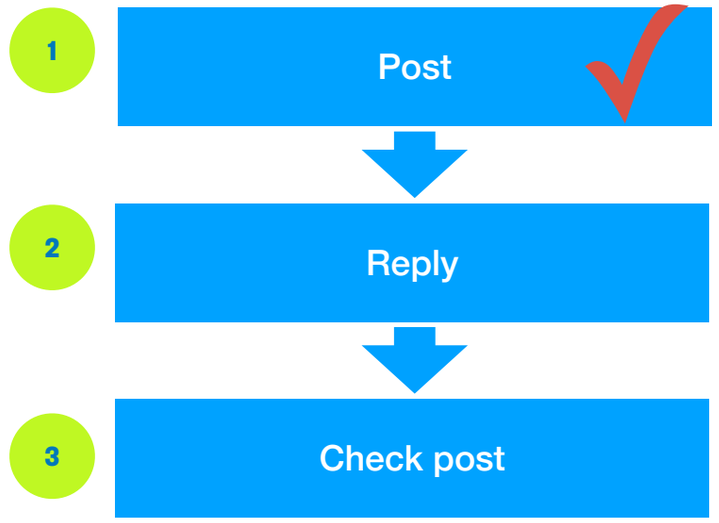
Discussion

The CSC BA tools provide a forum tools allowing BA to make discussion inside the tools.

It is important to record the note and discussion history for the future researches and publications of the GRBs. So we highly recommend the BAs to take notes in the BA tools.

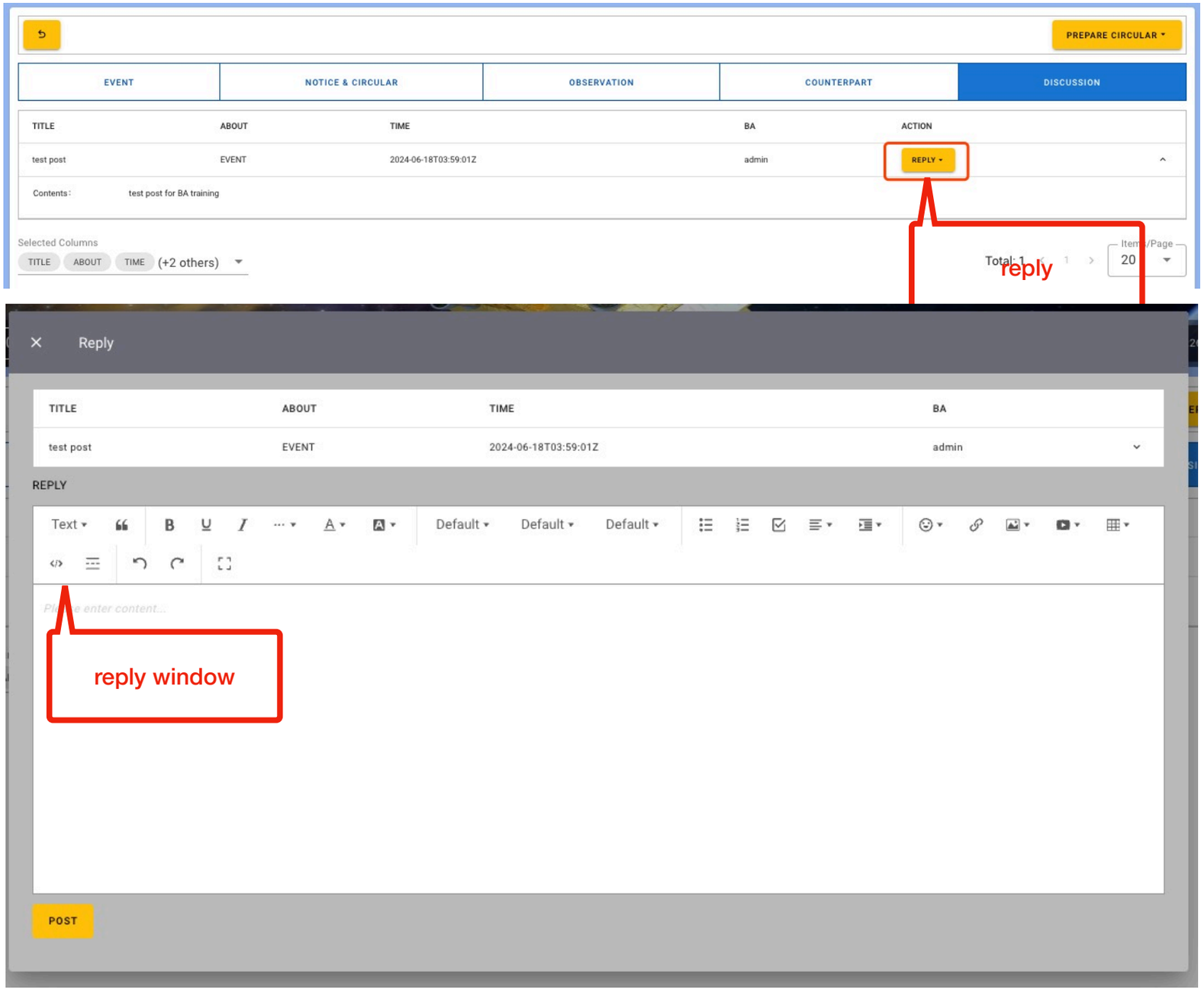
Discussion





To simplify the process of taking notes in the BA tools, BA can leave message in every page of the BA tools. BA can find a button to start editing the notes. All the notes will be listed in the “DISCUSSION” tab.

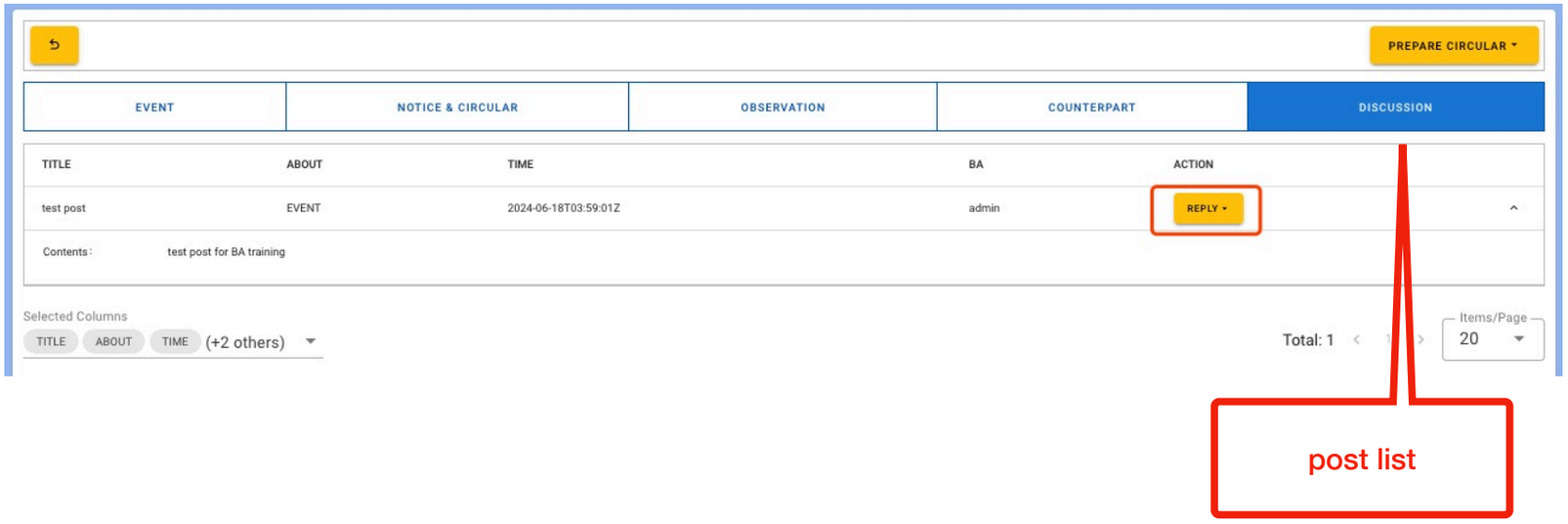
Discussion



1. Post
2. Reply
3. Check post

All BAs can reply the post.

Discussion



1. Post
2. Reply
3. Check post

With all the posts and replies, scientists can check the discussion history for this GRB

GW tiling

The CSC BA tools provide the functions for BAs to preform the optical counterpart identification, follow-up observation coordination and circular preparation.

The procedures are similar with them for GRBs. But since the very large sky area of the GW, the more difficulties for BAs to do their jobs.

In current version of the BA tools, we provide the useful information for BAs to deal with the complications. The optimization is still on going.

To be continue.....

Thanks for your patience!