

GALLOC: a GeoAnnotator for Labeling LOCation descriptions from disaster-related text messages

User Manual (Version 0.01)

Table of contents

1. Overview.....	1
2. User module.....	2
2.1 New user registration.....	2
2.2 Signing in GALLOC.....	2
2.3 Resetting your password.....	3
3. Project module.....	3
3.1 Creating a new project.....	3
3.2 Format of data to be uploaded.....	6
3.3 Reviewing or editing an existing project.....	6
3.4 Updating data.....	7
3.5 Managing users.....	8
3.6 Deleting a project.....	9
3.7 Adding a project to the profile of a user.....	9
4. Annotation and resolution module.....	10
4.1 Annotating a message.....	10
4.2 Going to the previous or next message.....	14
4.3 Editing annotations of a message.....	16
4.4 Managing and using pre-annotators.....	17
4.5 Output format of pre-annotators.....	20
4.6 Resolving different annotations of messages.....	20
4.7 Checking status of a project.....	22
4.8 Downloading corpus of annotated messages.....	23

1. Overview

GALLOC is a GeoAnnotator for Labeling LOCalation descriptions from disaster-related text messages. It is a Web-based and open-source platform that supports the creation of a dataset with labeled location descriptions, their categories, and spatial footprints.

GALLOC consists of three major modules: 1) user module, 2) project module, and 3) annotation and resolution module. The overall architecture of GALLOC is shown in Figure 1.

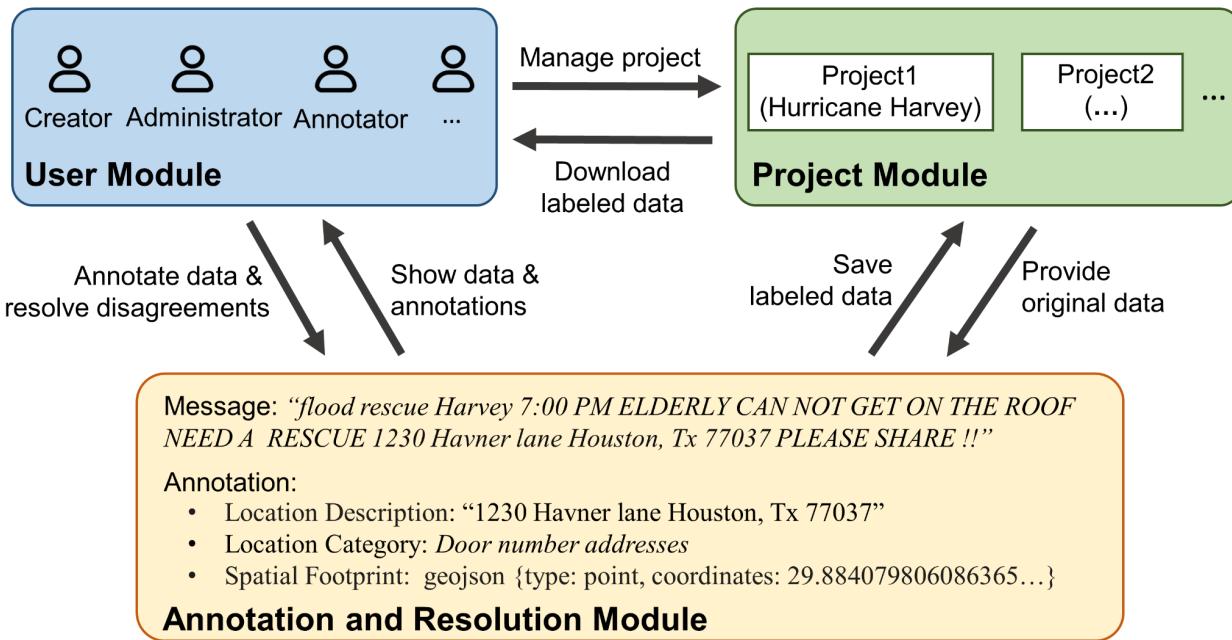


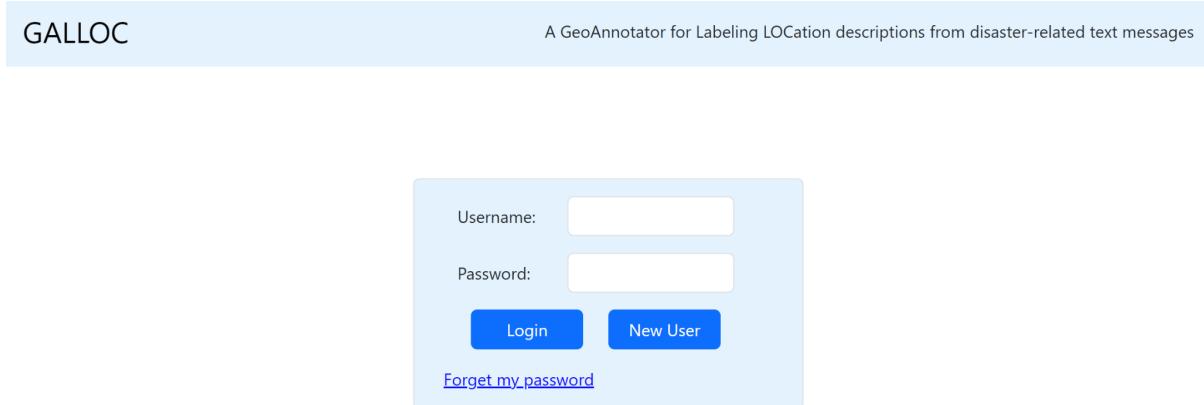
Figure 1. The overall architecture of GALLOC.

- The **User Module** supports the sign-up, login, and password changes of the users. Three roles are designed for the users: *creator*, *administrator*, and *annotator*. The *creator role* allows a user to create a project, edit project configurations (e.g., how many annotators are assigned to each text message), and resolve potential annotation disagreements from different users. The *administrators* are assigned by the *creator* and they share the same privileges as the *creator*. The *annotator role* only allows a user to make annotations. A user can concurrently be a *creator*, an *administrator*, and an *annotator*.
- The **Project Module** manages the creation, editing, and deleting of projects. A project can be created by specifying its project name, geographic scope, category schema, and number of annotators, batch size of messages, and uploading data to be annotated. A project can be edited and deleted by its creator and administrators. The annotated messages pertaining to a project can be compiled into a corpus which can then be downloaded.
- The **Annotation and Resolution Module** supports the annotation of text messages and resolution of disagreements in annotations. An annotation can be made by selecting the location description in a message, specifying its category and spatial footprint.

2. User module

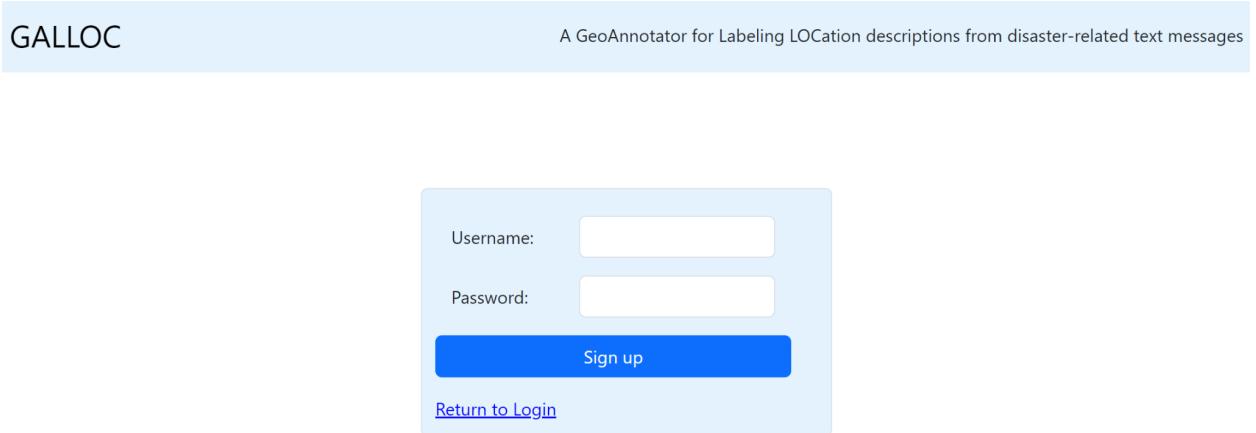
2.1 New user registration

A new user can start by registering themselves to GALLOC. To do so, one can click the “New User” button in the login page (Figure 2), and then fill in the username and password (Figure 3). Note that the user can only use letters and numbers for the username, or the system will pop up an alert message. After the user clicks the “Sign up” button, this user will be registered and can return to the login page to sign in the system.



The screenshot shows the GALLOC login page. At the top, there is a header bar with the text "GALLOC" on the left and "A GeoAnnotator for Labeling LOCalation descriptions from disaster-related text messages" on the right. Below the header is a light blue rectangular form. It contains two input fields: "Username:" and "Password:", each with a corresponding text input box. Below these fields are two blue buttons: "Login" on the left and "New User" on the right. At the bottom of the form is a blue link labeled "Forgot my password".

Figure 2. The login page.



The screenshot shows the GALLOC new user registration page. At the top, there is a header bar with the text "GALLOC" on the left and "A GeoAnnotator for Labeling LOCalation descriptions from disaster-related text messages" on the right. Below the header is a light blue rectangular form. It contains two input fields: "Username:" and "Password:", each with a corresponding text input box. Below these fields is a large blue button labeled "Sign up". At the bottom of the form is a blue link labeled "Return to Login".

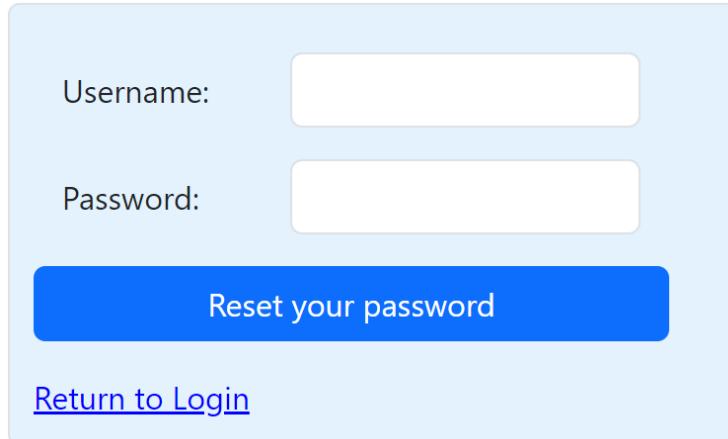
Figure 3. The page for new user registration.

2.2 Signing in GALLOC

If a user already has an account, one can sign into the system by inputting the username and password and clicking the “Login” button in the login page.

2.3 Resetting your password

If you need to reset your password, you can click “Forget my password” in the login page and go to the resetting password page (Figure 4). In this page, you can input your current username and a new password, and click the button “Reset your password”.

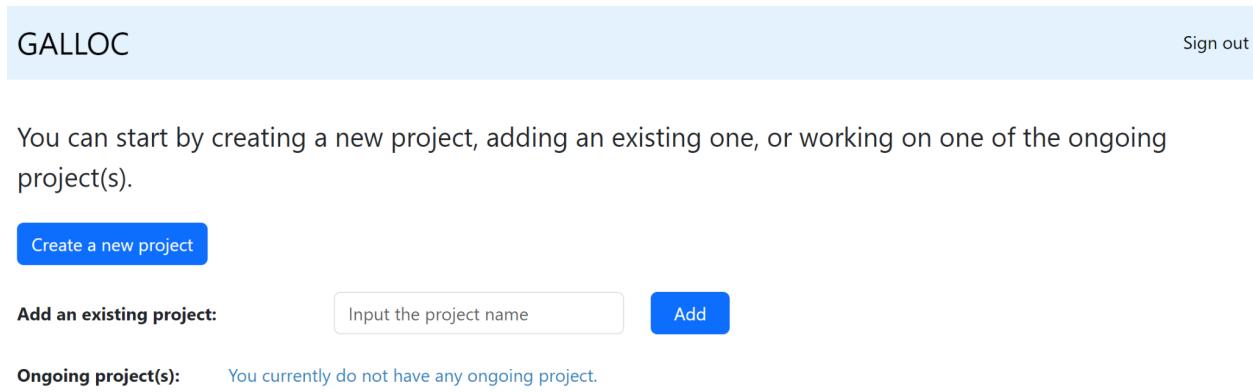


The figure shows a light blue rectangular form for password reset. It contains two input fields: one for 'Username' and one for 'Password', both with placeholder text. Below these is a large blue button labeled 'Reset your password'. At the bottom left of the form is a link 'Return to Login'.

Figure 4. Resetting password page.

3. Project module

Once the user has signed into the system, they will first enter the home page (Figure 5), which will show the ongoing projects that the user is associated with. Initially, this page will be empty as the user has not been linked to any project. The user can create a new project or join an existing project by typing the project name.



The figure shows the home page of a user. At the top, it displays the system name 'GALLOC' and a 'Sign out' link. Below this is a section for creating a new project, featuring a blue button 'Create a new project'. To the right is a search bar with the placeholder 'Input the project name' and a blue 'Add' button. A message at the bottom states 'Ongoing project(s): You currently do not have any ongoing project.'

Figure 5. The home page of a new user.

3.1 Creating a new project

By clicking the button “Create a new project”, one can go to the page for creating a new project (Figure 6).

GALLOC

Home Sign out

Project name: HurricaneHarvey

Geographic scope:

- Select a state Choose...
- Draw the geographic scope on map

Category schema:

Add category: Add

House number addresses
Street names
Highways

Remove the selected category

Annotator number i 2

Batch size of messages i 10

Create **Cancel**

Leaflet | © OpenStreetMap

Figure 6. Page for creating a new project.

To create a new project, the following information is needed.

- Project name: The user needs to provide a name for the project. If this name has already been used by other projects, the user will receive a message to change the project name.
- Geographic scope: Two ways can be used for defining a geographic scope for the project:
1) Selecting a state of the US (for US studies only); 2) Drawing a polygon or a rectangle on the map (for anywhere in the world).
 - Category schema: The user can define a schema for the categories of location descriptions. To add one category, the user needs to input the category name and click the “Add” button, and those added categories will be saved in the box below. If the user wants to remove one or more categories, they can select them in the box, and click “Remove the selected category”. Category schema is not always required for a project. If the user does not want to label location descriptions in different categories, then no category schema is needed and all location descriptions will be put under the same simple category of “Location”.
 - Annotator number: The user will need to specify the number of annotators for annotating a message. The default number is “2”, i.e., two annotators will be assigned to each text message.
 - Batch size of messages: Messages are annotated by batch in GALLOC. The default batch size is “10” but the user can specify other numbers as needed. The batch size parameter allows a user to revise annotations for the text messages in a batch. For example, if the batch size is set to “10”, the user can look back and revise their previous annotations in this batch of 10 messages. If the batch size is set to “5”, the user can look back and revise their previous annotations in the batch of 5 messages.

Once all information is provided, the user can click the “Create” button to create this project. As shown in Figure 7, a modal will show up to tell the user that this new project has been created successfully and also ask the user whether they want to upload data to this project now or later.

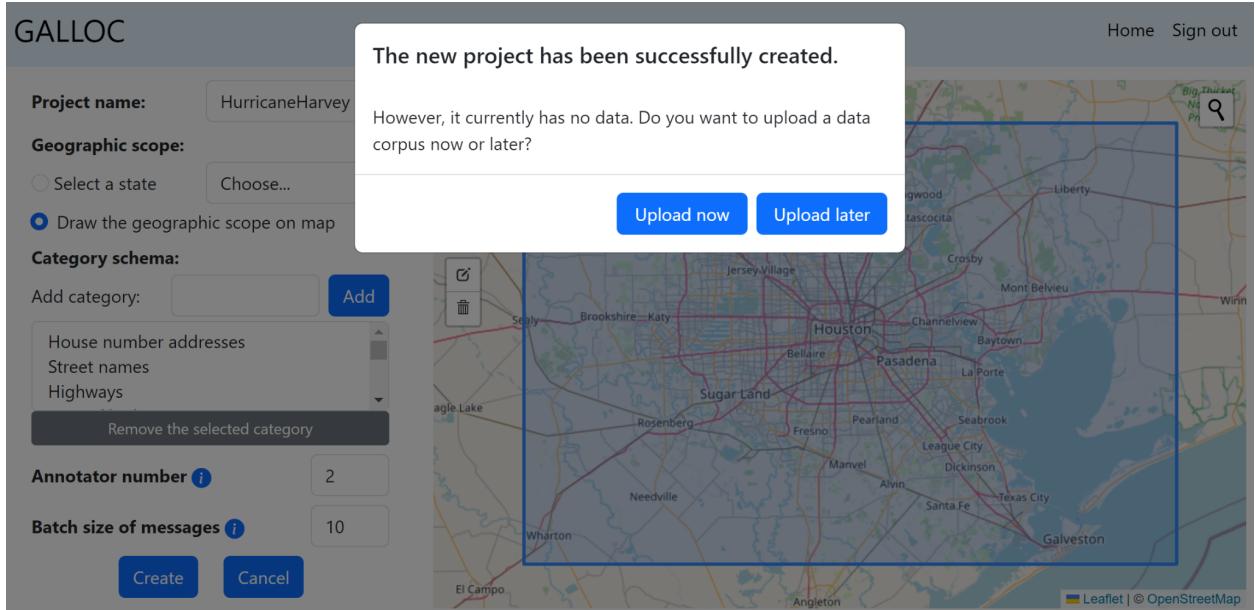


Figure 7. A modal for telling a user the successful creation of a project and reminding the user to upload data.

If the user chooses “Upload later”, the system will go to the home page, and the user can upload data later using other functions which will be presented in the following sections. Or, if the user chooses “Upload now”, a new modal will show up to allow the user to upload data (Figure 8). To upload data for this project, one can choose a local file containing data and click the button “Upload”. Once the system has finished uploading data for this project, there will be a confirmation message.

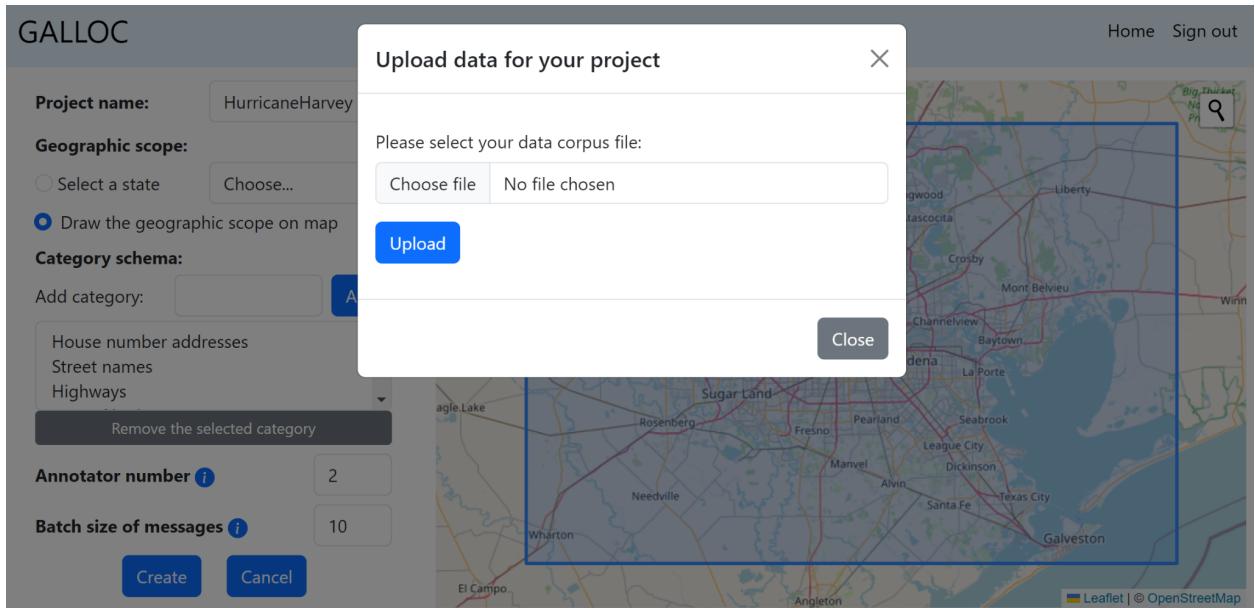


Figure 8. A modal for uploading data to the created project.

If the user did not define a category schema for this project, a modal (i.e., a message window) will show up to remind the user that a location category is not provided and all the location descriptions will be annotated as the default category of “Location” (Figure 9).

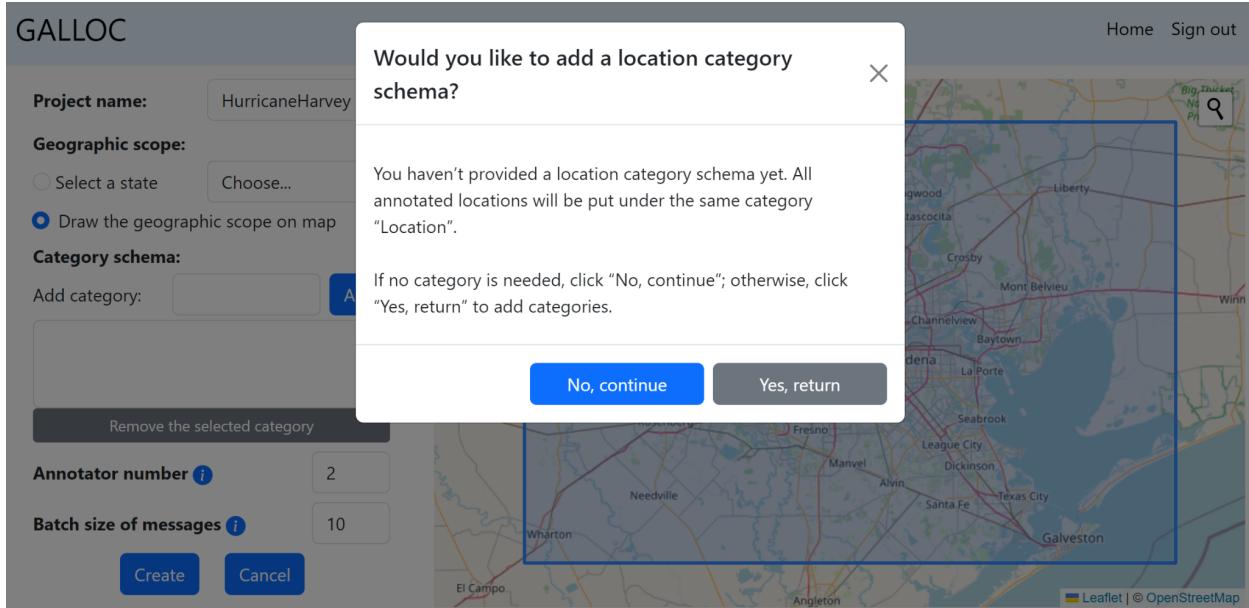


Figure 9. A modal for reminding the user that a location category schema is not defined.

3.2 Format of data to be uploaded

The data to be uploaded to the system needs to follow a pre-defined data format to allow automatic data processing. The uploaded file needs to have one text message per line formatted into a JSON object. The “text” attribute in the JSON object contains the text message to be annotated. Other attributes related to the text messages, such as number of likes and number of shares (e.g., for social media messages), can also be added to the data as well. An example dataset is provided in our GitHub repository at the link: https://github.com/geoai-lab/GALLOC/blob/master/Test_corpus.txt, and a screenshot is provided in Figure 10.

The screenshot shows a code editor with a file named 'Test_corpus.txt'. The file contains a list of JSON objects, each representing a text message. The messages are about Hurricane Harvey and include links to news articles. Here is the content of the file:

```

1  [{"text": "OPEN SHELTER: North Shore 9th Grade Center - 13501 Hollypark Houston, TX 77015 #Harvey #DisasterPIO"},  
2  {"text": "TRAFFIC ALERT: FM 2770 at Bluff Street is closed. #Harvey #turnaroundsdontrdown #budatx"},  
3  {"text": "Buffalo Bayou is coming into @KHOU's studios. They are going to the second floor to keep broadcasting.  
#Harvey\u00c3\u00a2\u00e2\u201a\u00ac\u00c2\u00a6 https://t.co/Oxgc4z1lx5"},  
4  {"text": "No, this is NOT a river. It is a #Houston Freeway. N I-45 a Main Street.PLS avoid the roads! #Harvey  
#Harvey2017\u00c3\u00a2\u00e2\u201a\u00ac\u00c2\u00a6 https://t.co/P8CyxK3AGS"},  
5  {"text": "Quick update: pregnant woman in labor on San Angelo Street has been finally transported by ambulance. #Harvey"},  
6  {"text": "Woman's Body found floating on flooded west Houston st, neighbor says -My Prayers to Victims #Harvey  
#houstonflood https://t.co/YnpvVOEAgs"},  
7  {"text": "Car almost completely submerged at Gulf Fwy. & Wayside. Gulf Fwy. is shut down. #Harvey #Khould  
https://t.co/bDVVL5KhcI"},  
8  {"text": "#BREAKING: Flooding along Brays Bayou has exceeded Memorial Day flood record. Exceeding Allison in the Med  
Center. #Harvey #Houston"},  
9  {"text": "Belt @ Pearland Pkwy -- see those tiny black dots? Those are roofs of cars. #abc13 #Harvey  
https://t.co/U7iLRrgiu4"},  
10 {"text": "These two drivers are stuck just off the north freeway in Houston. They're certainly regretting their  
decision.\u00c3\u00a2\u00e2\u201a\u00ac\u00c2\u00a6 https://t.co/2Plw8fWhfp"}

```

Figure 10. An example data file containing text messages.

3.3 Reviewing or editing an existing project

Once the new project has been created, it will be shown in the list of ongoing projects in the home page (Figure 11).



Figure 11. A list of ongoing projects on the home page.

The user can review or edit an existing project by clicking the hyperlink with the project name. Note that only the creator or administrators of a project can edit project information and the annotator can only review it. To edit information of a project, the user can modify any piece of information and click “Save”. A message will show up to tell the user that the project has been successfully updated.

3.4 Updating data

One can manage the data of a project by clicking the “Update data” button in the home page. Then, a modal will show up to allow the user to update data. If this project currently does not have any data, this modal will ask the user to upload data (Figure 12). The user can upload data for this project with this modal.

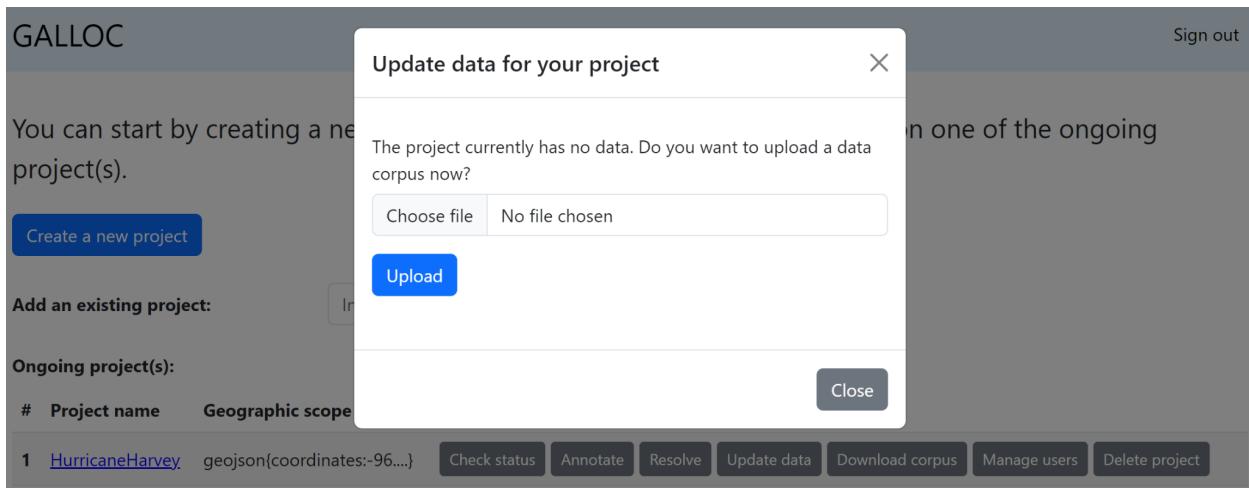


Figure 12. Uploading data for a project using the function for updating data.

If this project already has some data, this modal will allow the user to add more data, replace existing data, or delete existing data (Figure 13). 1) Adding more data. The user can first choose a local file containing messages and click the button “Add more data”, and then the new data will be appended to this project along with the existing data. 2) Replacing existing data. This function

helps the user to replace existing data with new data. The user also needs to choose the data file and replace data. 3) Deleting existing data. The user can delete existing data of a project by directly clicking the button “Delete existing data”.

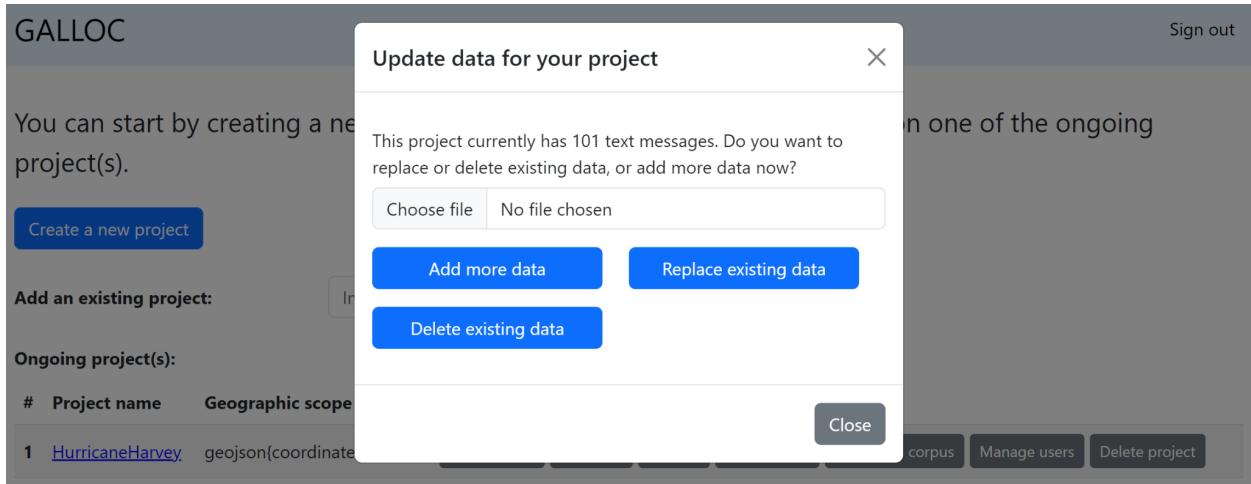


Figure 13. Updating data for a project.

3.5 Managing users

The creator and administrators of a project can manage the users of a project by clicking the “Manage users” button. Then, a modal will appear to allow the administrators to add more users and manage their roles (Figure 14).

- Adding a new user: one administrator can add a user by inputting the username, selecting the role, and clicking the “Add” button, this user will be added to this project as a selected role and will also be presented in the following table.
- Updating the role(s) of users: the administrator can check or uncheck the roles in the table and click the button “Update” in the same row to manage the roles of users in this project.
- Deleting a user: the administrator can click the “delete” button in the row in which the user to be deleted is. This user will be deleted.

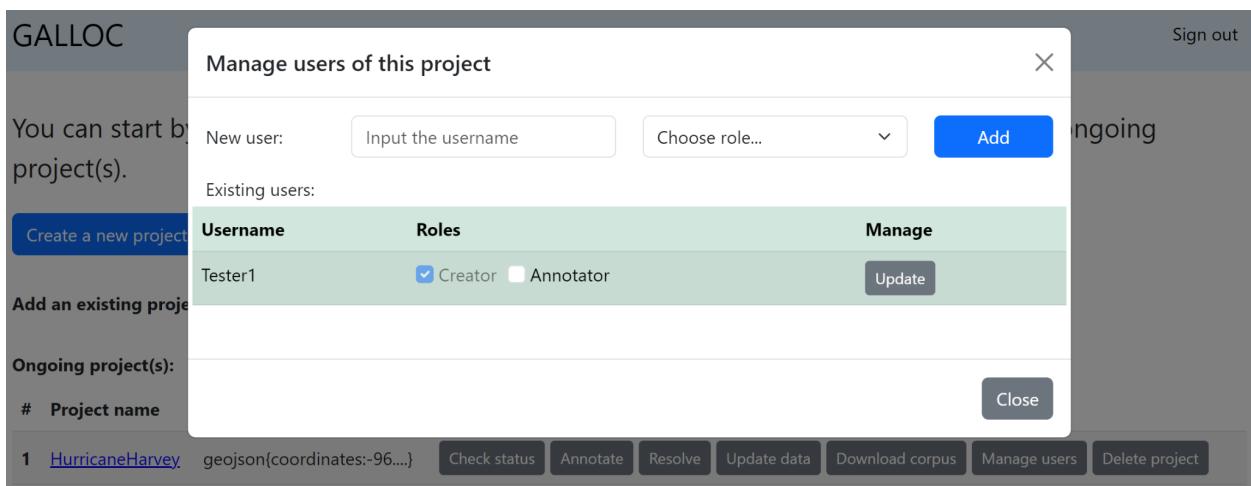


Figure 14. The modal for managing users of a project.

3.6 Deleting a project

The creator and administrators can choose to delete a project. If a user wants to delete a project, one can click the “Delete project” button in the same row. A modal will appear to confirm that the user is deleting a project (Figure 15).

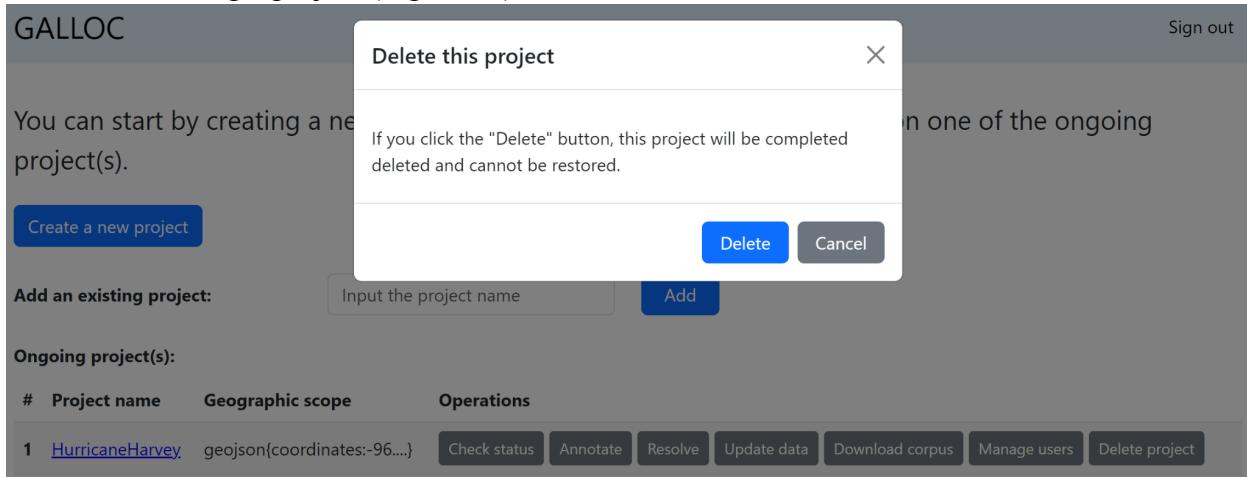


Figure 15. A modal for reminding the user that this project will be deleted.

3.7 Adding a project to the profile of a user

A user can also add oneself as an annotator of a project that is created by others. To do this, this user will need to input the project name and click the “Add” button (Figure 16). Then, this user will be added as an annotator of this project. This project will then be shown in the list of ongoing projects of the user in the home page.

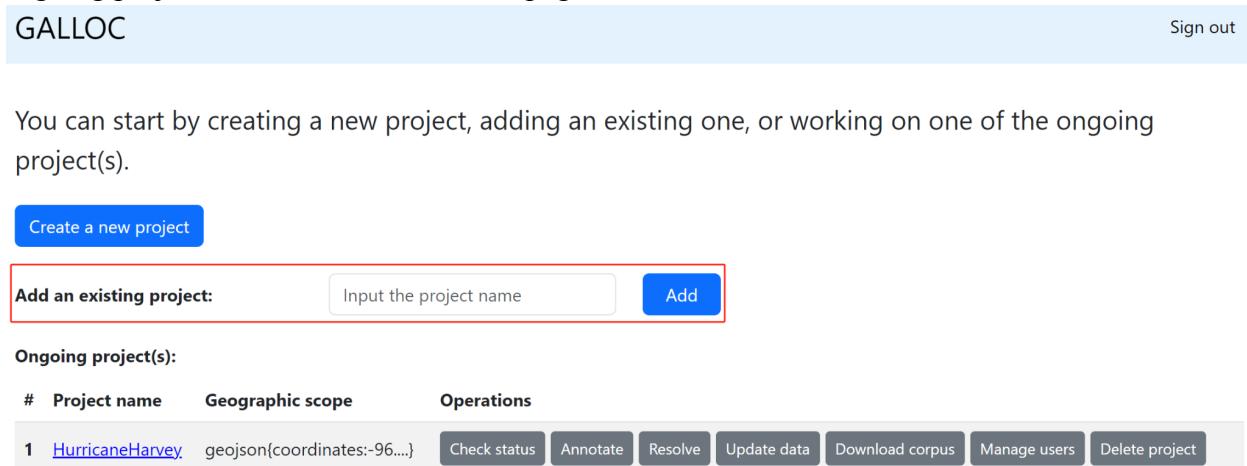


Figure 16. Adding a project.

4. Annotation and resolution module

4.1 Annotating a message

To start annotating messages in a project, a user will need to click the “Annotate” button in the same row. To enter the annotation page of a project, this project should have data, and this user should be an annotator of this project. If not, a modal will show up to ask the user to take appropriate actions (Figure 17). Once these two conditions are fulfilled, the user can enter the annotation page (Figure 18).

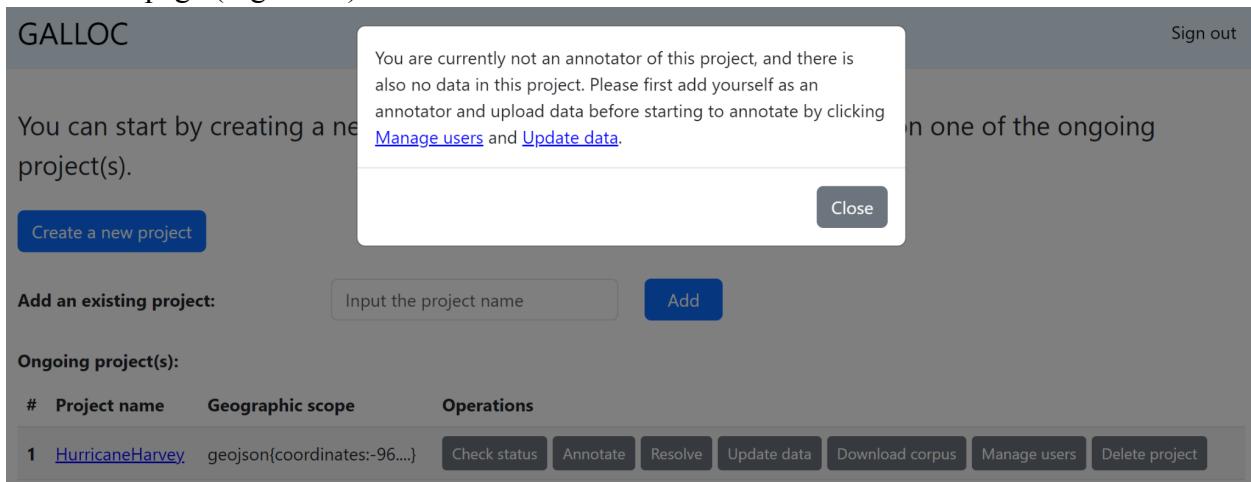


Figure 17. A modal for telling the user the two prerequisites required for entering into the annotation page of a project.

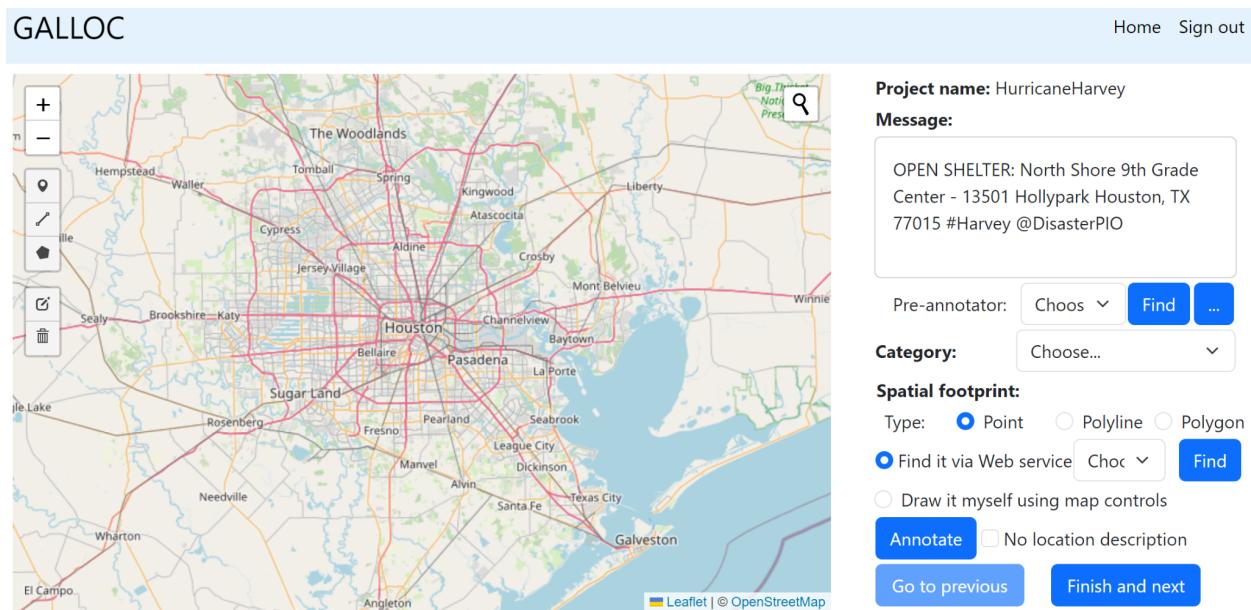


Figure 18. The annotator page.

Messages are annotated by batch in GALLOC. When a user enters the annotation page, it will show the first message of the current batch. To make an annotation in this message, three components are required.

1) Selecting a location description in the message. A user can select the text of a location description in the current message using the mouse. Once the user has finished the selection, this location description will be highlighted as a span in the message (Figure 19). A user can select multiple spans in a message and can remove one by clicking the close button at the upper right corner.

2) Selecting a category for this location description from the category schema. The user can choose the category from the select box (Figure 19).

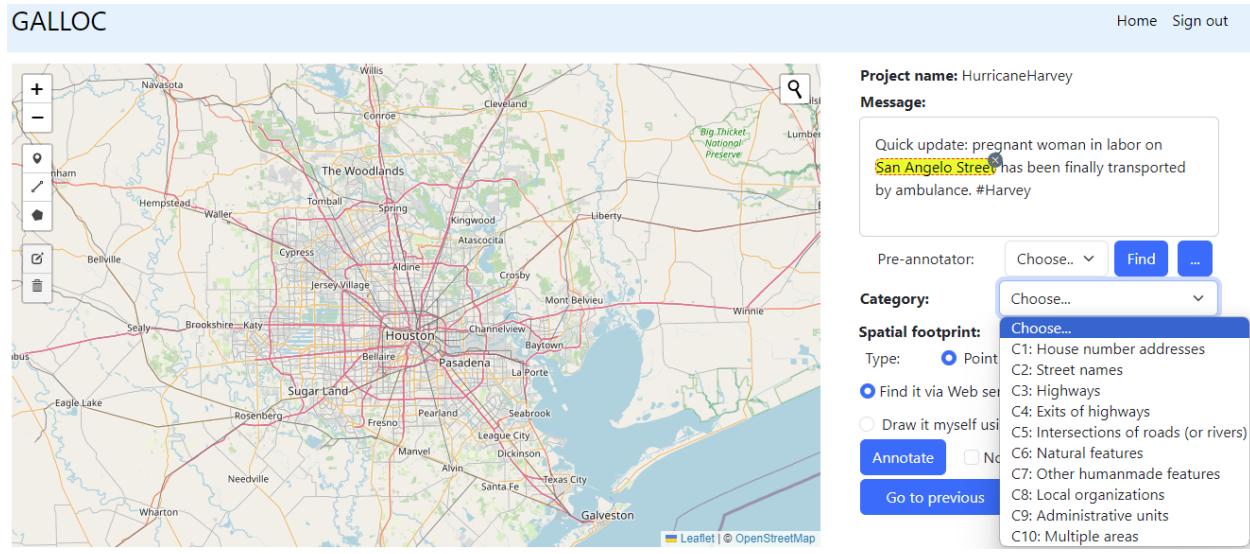


Figure 19. Selecting a text span and a category for a location description.

3) Determining the spatial footprint for this location description. The user needs to first select the type of spatial footprint. Then, there are two ways to obtain the spatial footprint. The first way is to automatically find the spatial footprint via Web service. GALLOC provides two web services (i.e., Nominatim and Google Maps). The user can select one of them and click the “find” to extract the spatial footprint. Nominatim can return both a point and a more complete geometry. Therefore, when Nominatim is selected, a modal will show up to ask the user to determine which one spatial footprint will be used (Figure 20). Google Maps can only return a point geometry. When the selected type of user is not “Point” and Google Maps is used, a modal will show up to allow the user to use the returned point geometry or take other actions (Figure 21). The second way is to directly draw the spatial footprint on the map using map controls.

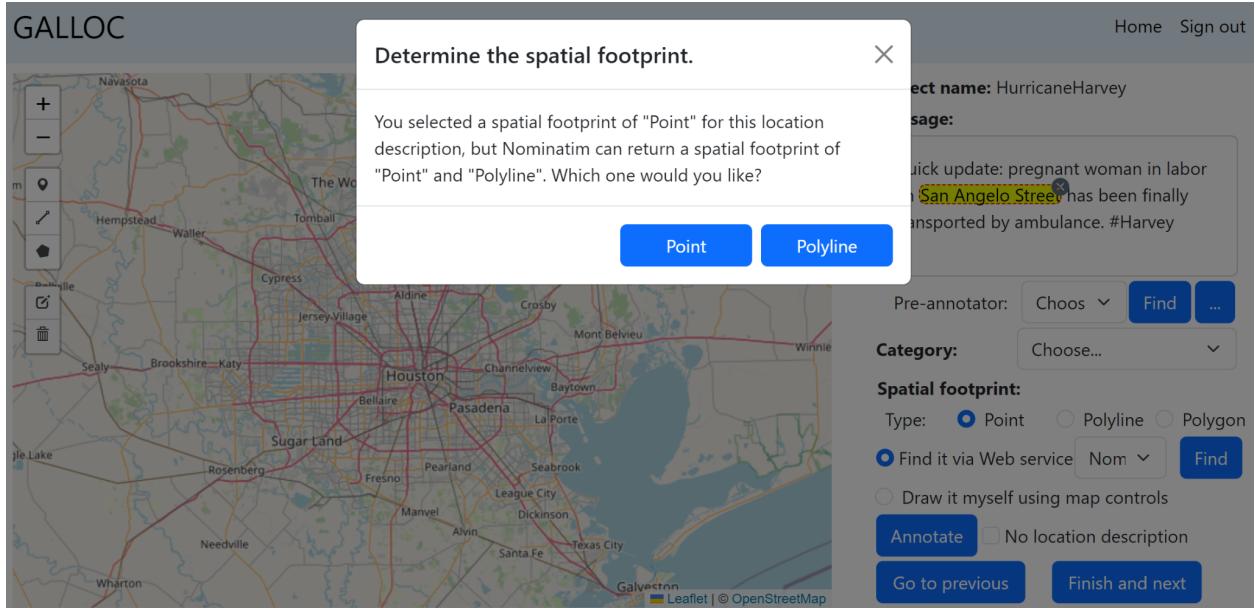


Figure 20. A modal showing up when Nominatim is used.

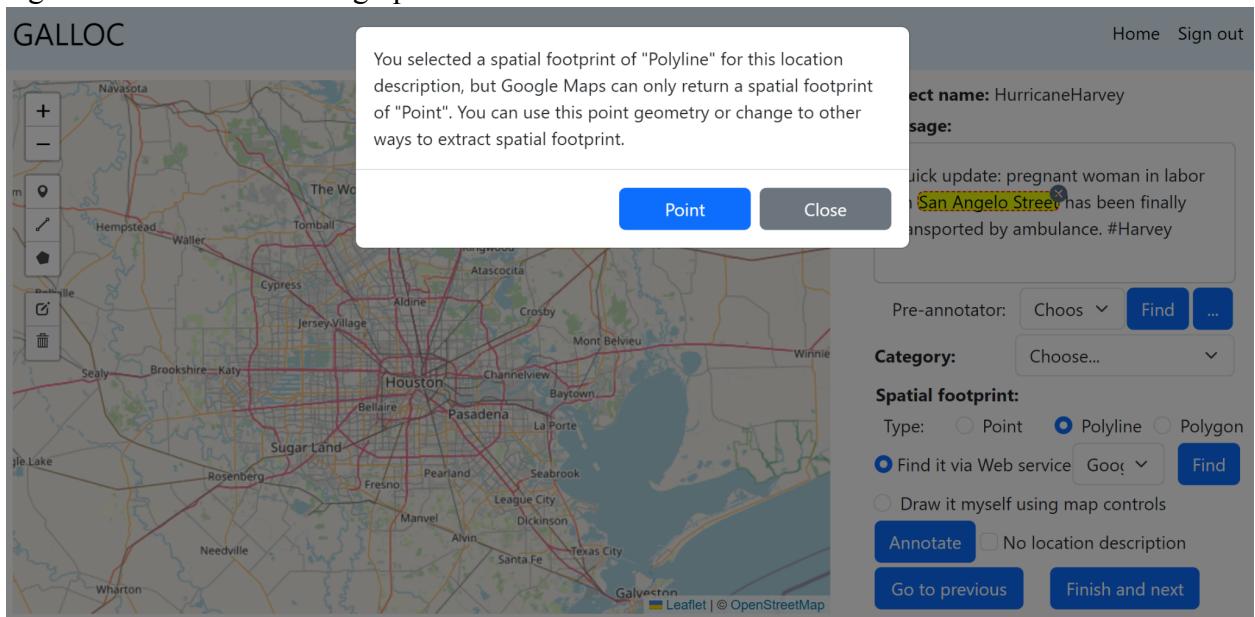


Figure 21. A modal showing up when Google Maps is used.

When the three components are all annotated, the user can click the button “Annotate” to add this annotation to this message. As shown in Figure 22, the selected span will be highlighted to a different color, and the category of this location description will be shown at the upper left corner. A pop up window will appear to tell the user that this location description has been annotated and that one can repeat this process to add more annotations to this message (if the current message contains other location descriptions). One can choose to not show this pop up window later, otherwise it will always show up once one annotation is added.

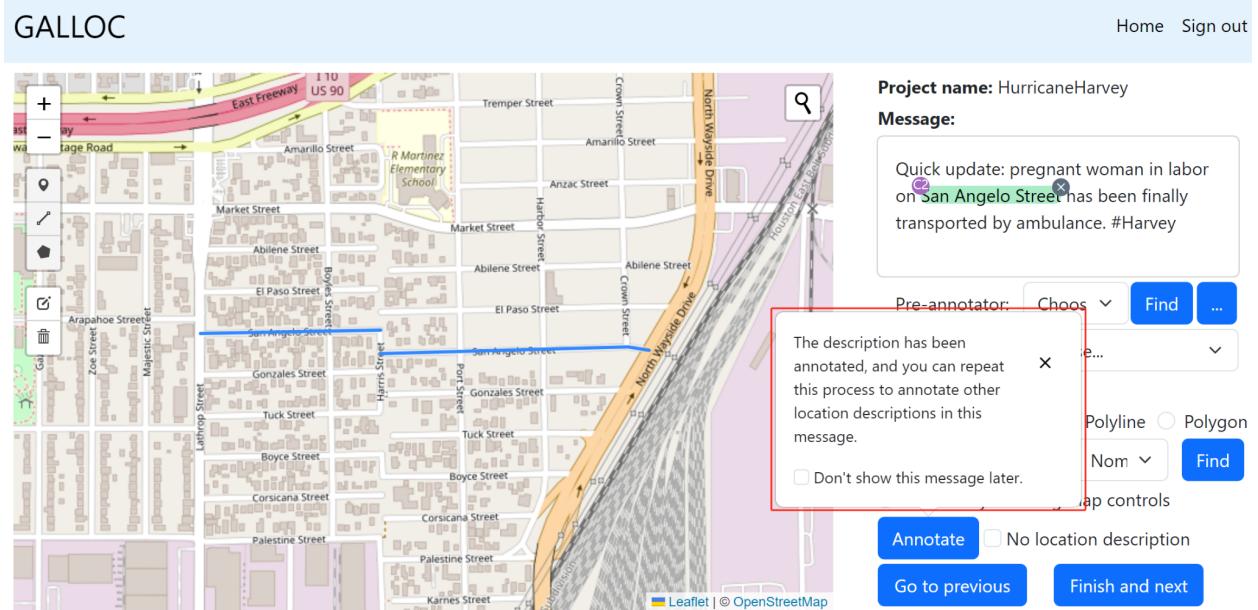


Figure 22. A pop up window showing up when a location description is annotated.

If there is no location description within the current message, one can check the “No location description” box.

When all messages in a project have been annotated, a modal will show up to tell the user this information and ask the user to return to the home page (Figure 23).

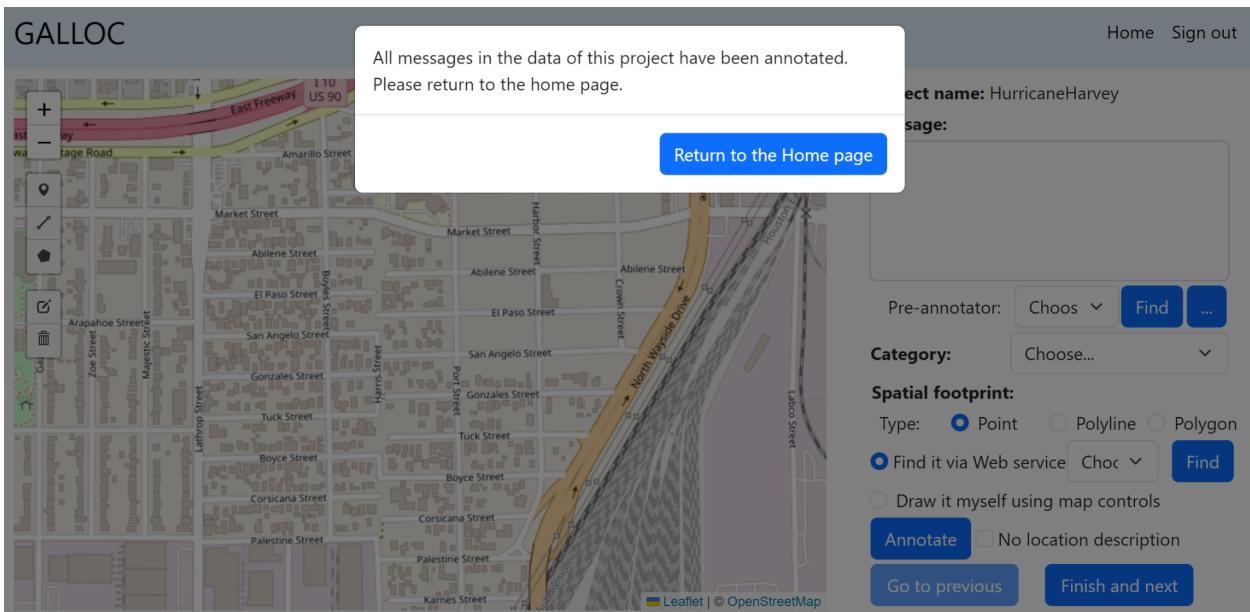


Figure 23. A modal showing up when all messages in a project have been annotated.

4.2 Going to the previous or next message

When the user has finished annotating the current message, they can click “Finish and next” to go to the next message. If the user hasn't completed annotating this message, they can also click this button, and this message will be labeled as unannotated. If there is any span of text which is selected but not annotated, a modal will show up to remind the user that if going to the next message, those spans will be lost (Figure 24). The user can choose to return to work on those unannotated spans, or continue to go to the next one. If a user annotates one or more location descriptions in the current message but also checks the “No location description” button, a modal will show up to ask the user whether they want to save the added location description(s) or keep the option of “No location description” (Figure 25).

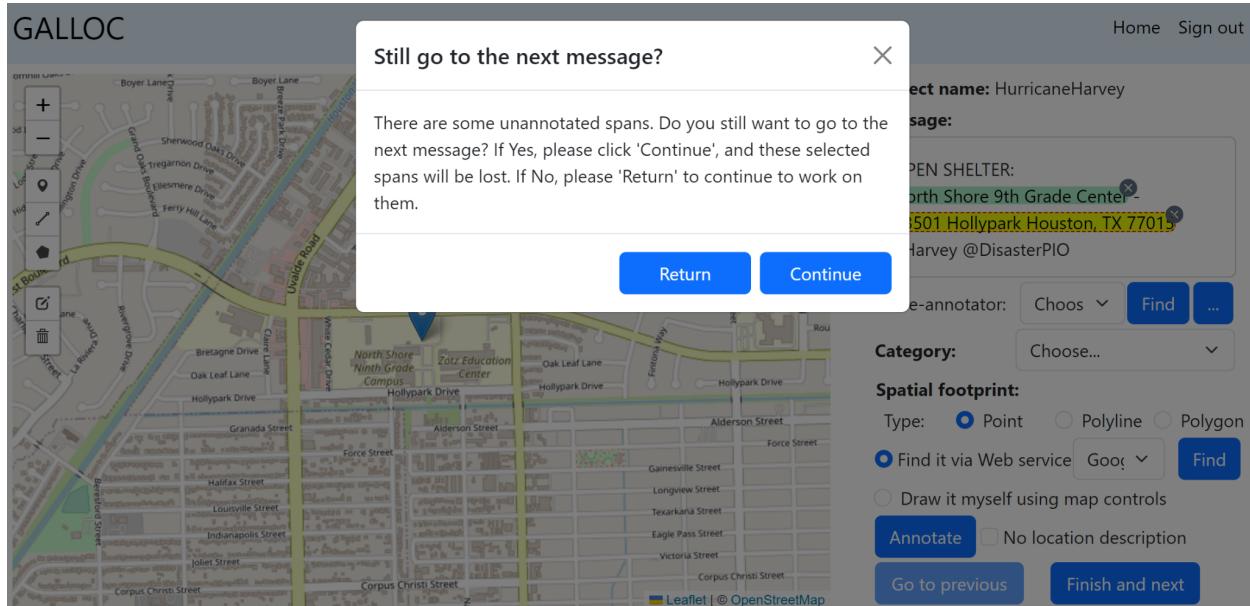


Figure 24. A modal for reminding the presence of unannotated spans.

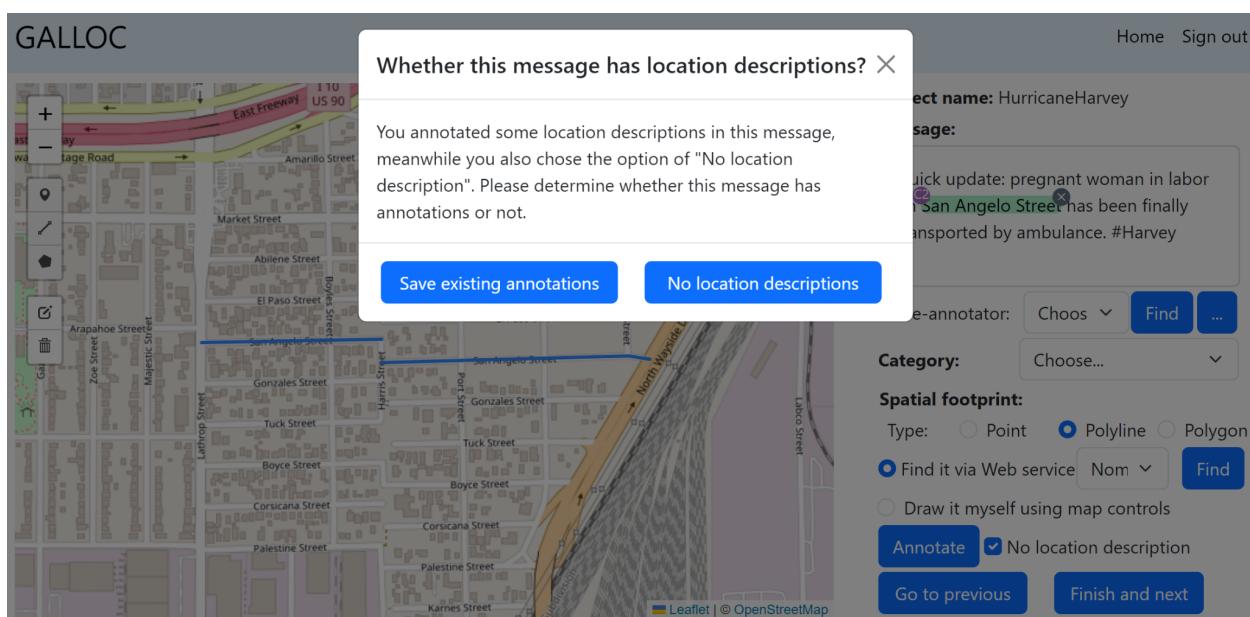


Figure 25. A modal for reminding the user to decide whether this message has any location description.

One can also click “Go to previous” and “Finish and next” to go back and forth in a batch to check the annotated text messages. Green and red signs will indicate whether a message has been “annotated” or “unannotated” (Figure 26).

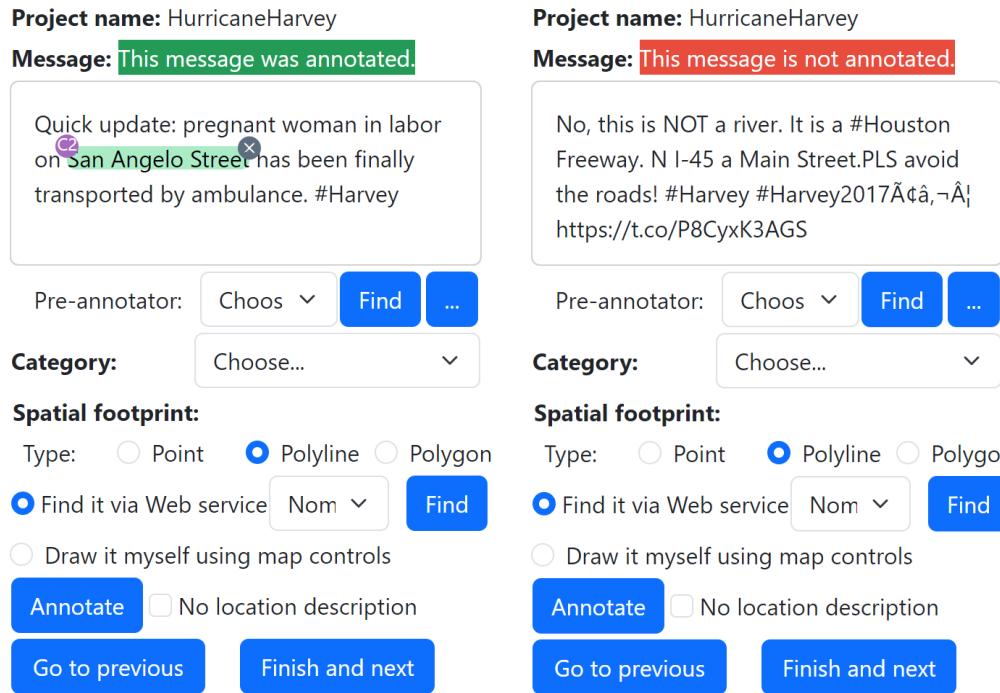


Figure 26. Going to the previous and next message.

If the current message is the last message of the batch and the user clicks the “Finish and next” button, a modal will show up providing different messages depending on the scenarios. If all messages in the current batch have already been annotated, a modal will show up to ask the user to submit the current batch or return to continue editing annotations of messages in the current batch (Figure 27). If the user would like to submit the current batch, one can click the “Submit” button. Then, this batch of messages will be submitted, and cannot be edited anymore. If some messages are still not annotated, a modal will appear to remind the user to annotate those remaining messages (Figure 28).

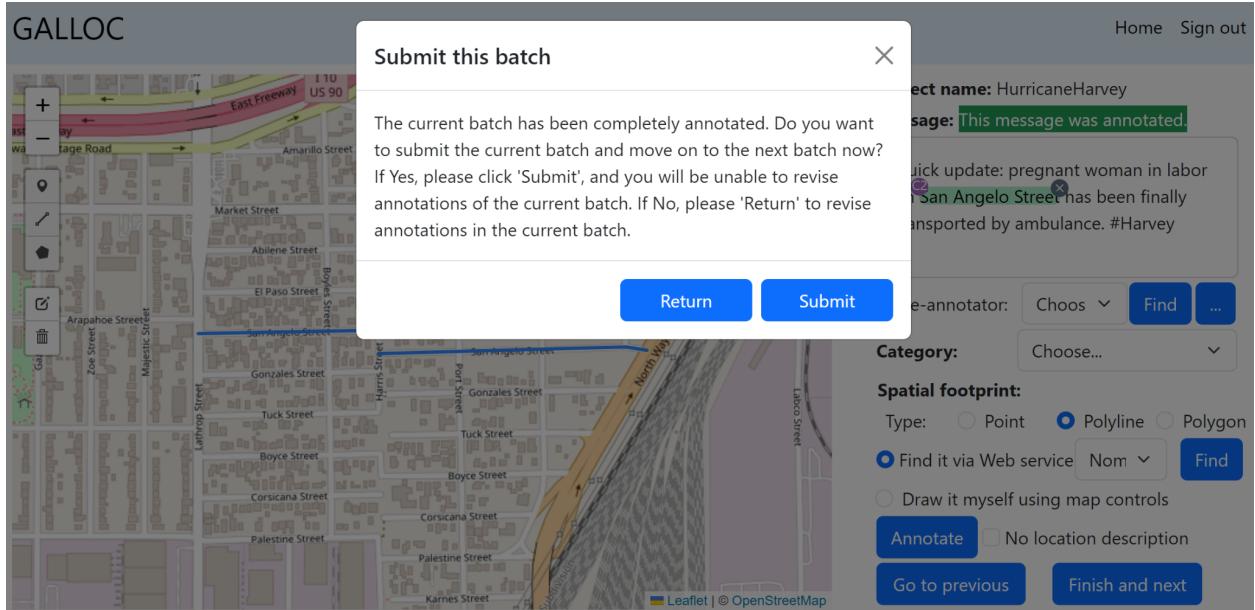


Figure 27. A modal for submitting the current batch.

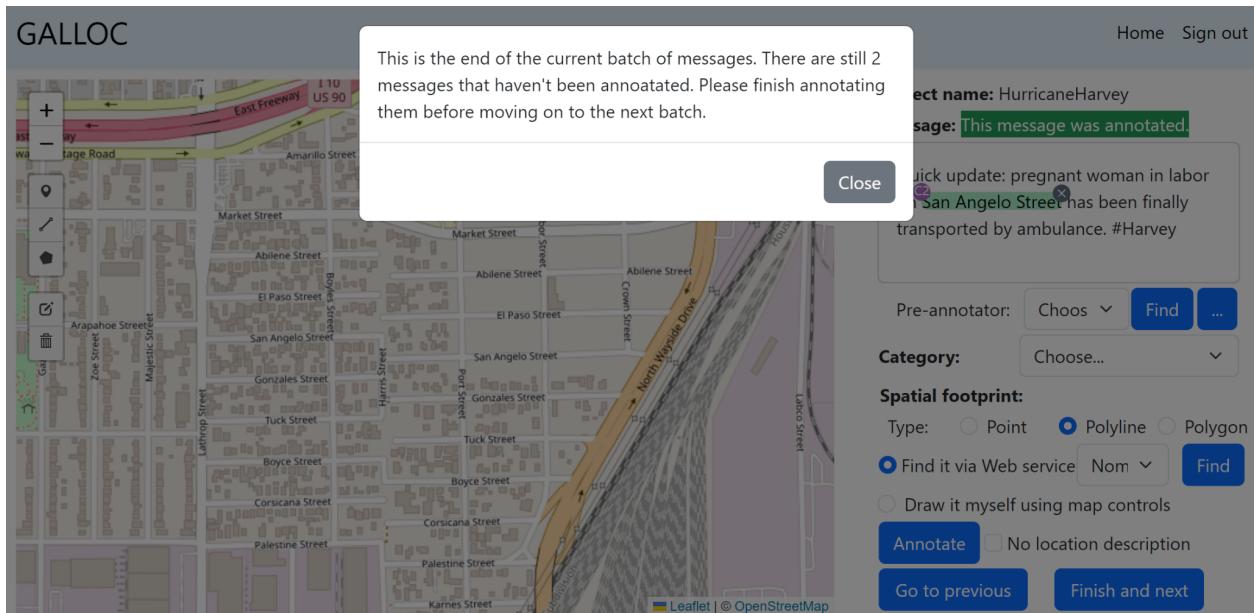


Figure 28. A modal for reminding the user to continue to annotate the remaining messages.

4.3 Editing annotations of a message

If the user would like to edit an annotated message, one can go to this message by clicking “Go to previous” or “Finish and next”. Three types of edit operations can be used. 1) The user can add new annotation(s) using the above process. 2) One can also remove existing annotations by clicking the close button at the upper right corner. 3) One can first select one existing annotation by clicking the annotated span, revise its category or spatial footprint, and then click the “Annotate” button to update this annotation. Note that when an existing annotation is selected, it will be surrounded by a red border, its category will be shown in the box for the category schema, and its spatial footprint will be highlighted on the map (Figure 29). Once the user has

finished editing annotations of a message, one can click “Finish and next” to save the revised annotations.

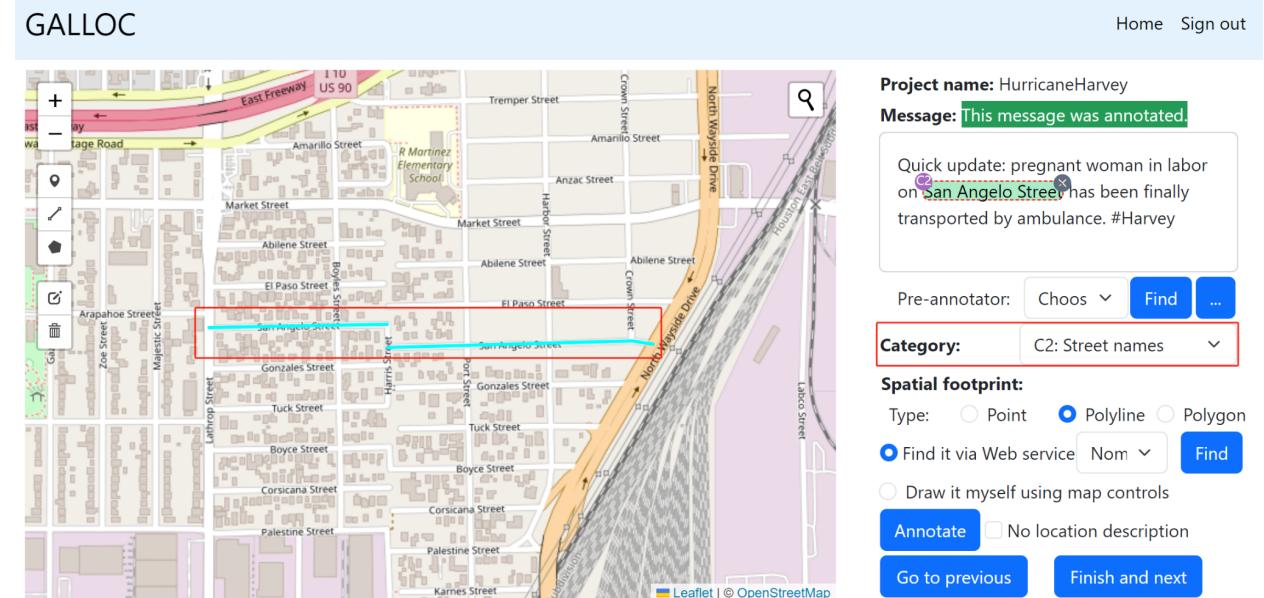


Figure 29. A selected annotated span.

4.4 Managing and using pre-annotators

GALLOC also allows users to make pre-annotation using pre-annotators. The user can manage pre-annotators by clicking the “...” button in the annotation page. A modal will show up to allow the user to add or delete pre-annotators (Figure 30).

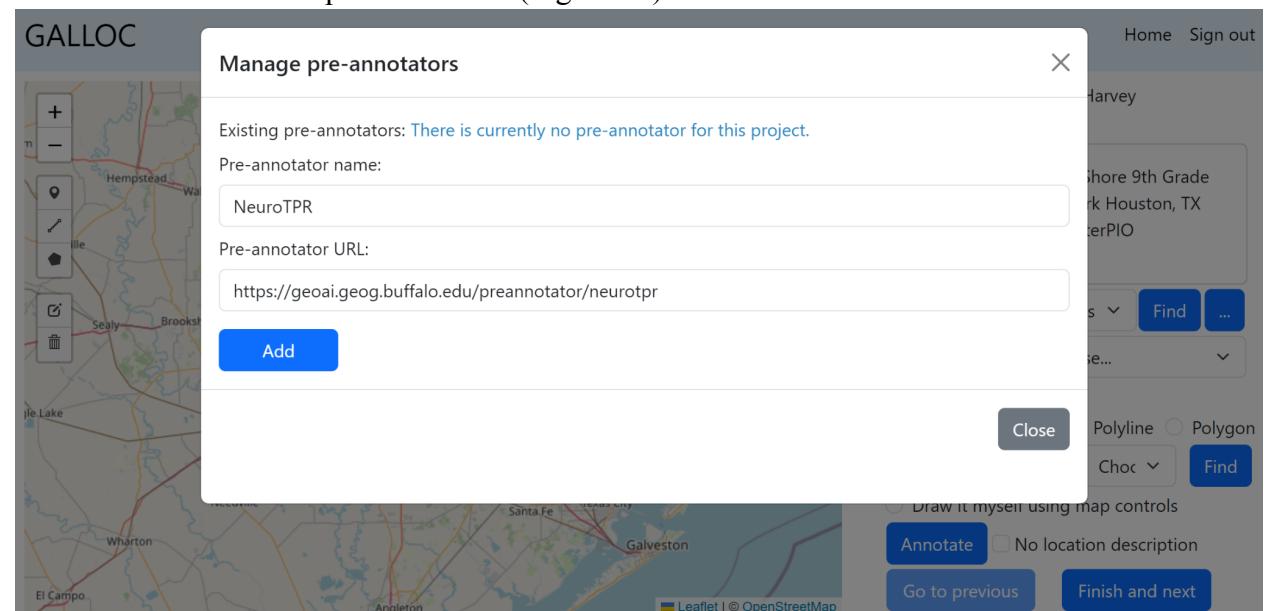


Figure 30. A modal for managing pre-annotators.

GALLOC requires that pre-annotators have to work as a web service. To add a pre-annotator, the user needs to input the name and URL of the pre-annotator, and click the “Add” button. Then, GALLOC will start to test whether this pre-annotator can be used and whether the result

returned by this pre-annotator is consistent with the format that GALLOC requires, which will be presented in the next section. As shown in Figure 31, GALLOC is trying to connect and test the pre-annotator of NeuroTPR. Once the pre-annotator passes the test, it will be added as a pre-annotator in the table (Figure 32). To delete a pre-annotator, one can click the “delete” button in the same row.

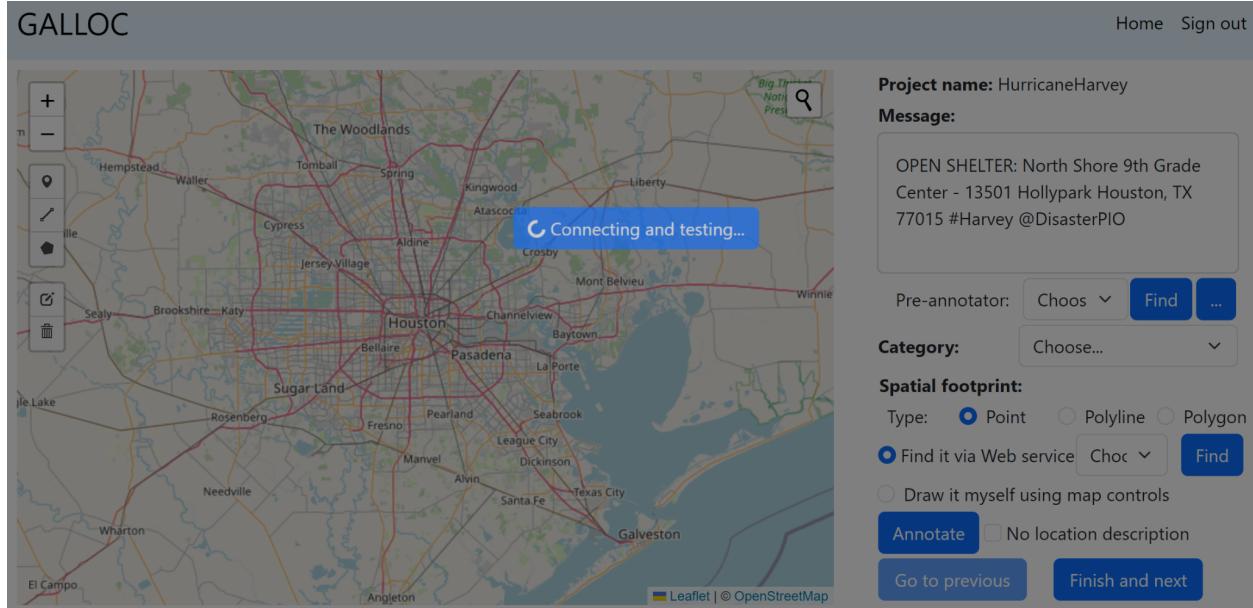


Figure 31. Connecting and testing a pre-annotator.

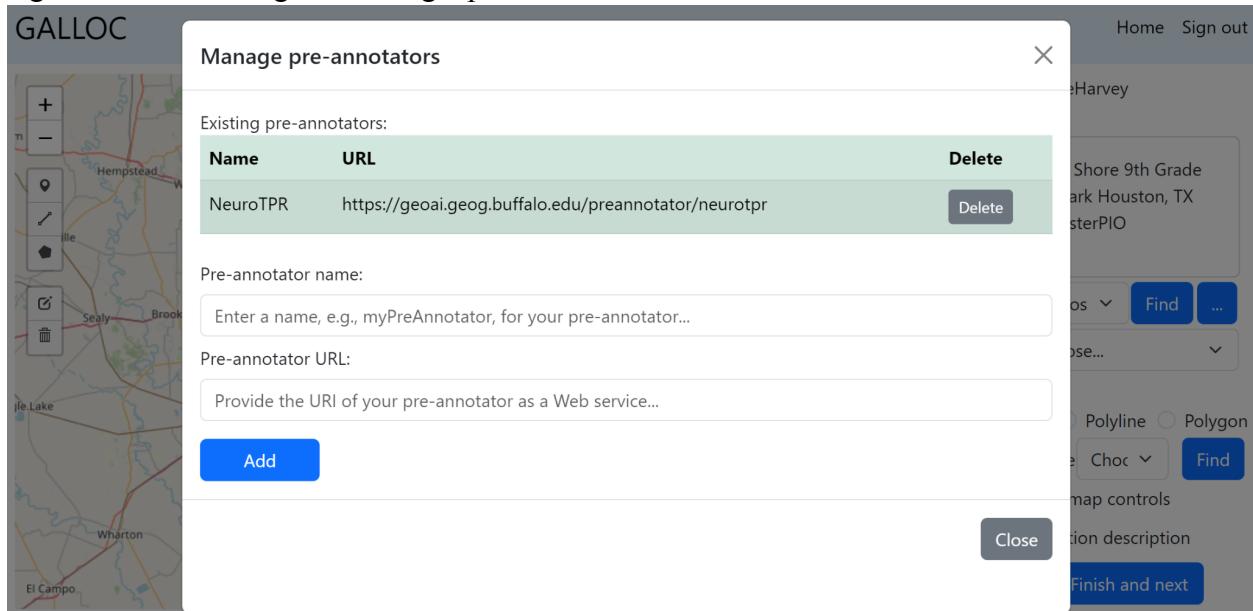


Figure 32. A pre-annotator has been added.

To use a pre-annotator, the annotator needs to select one from the box and click the “Find” button. Then, the returned result will be automatically highlighted as text span(s) in the current message (Figure 33).

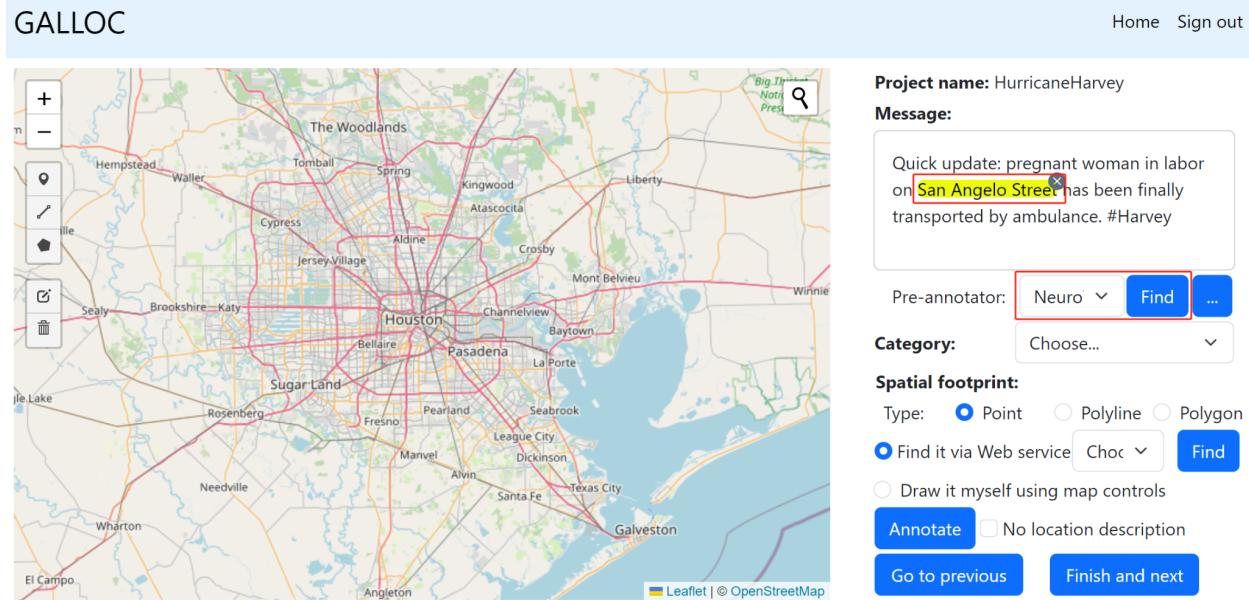


Figure 33. A highlighted span of a location description returned by a pre-annotator.

To adopt these pre-annotated location descriptions, one can click a highlighted span, which will be surrounded by a red border. Then the user can determine its category and spatial footprint, and click the “Annotate” button to finish this annotation. Note that the use of a pre-annotator will remove any existing annotations in the message. If there exist annotations, a modal will show up to remind the user to keep the existing text spans or use the pre-annotator (Figure 34).

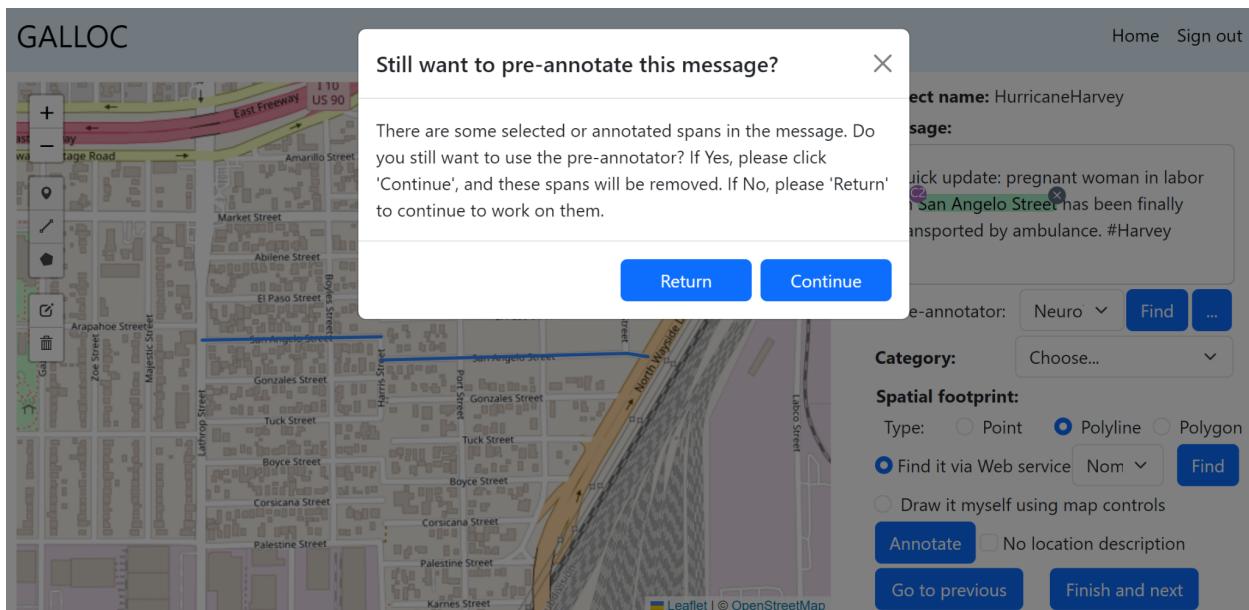


Figure 34. A modal to remind the annotator to keep the existing text spans or use the pre-annotator (the text spans will be removed).

4.5 Output format of pre-annotators

The output of a pre-annotator needs to conform to the format we defined. As shown in Listing 1, the output of a pre-annotator should be a JSON object. It contains a root attribute *Annotation*, which is an array of JSON objects for recognized location descriptions. Each JSON object (i.e., each location description) requires three attributes: 1) *startIdx*: the start position of a location description in character index; 2) *endIdx*: the end position of a location description in character index; 3) *locationDesc*: the text of a location description.

```
{  
    Annotation:  
    [  
        {  
            startIdx: 32,  
            endIdx: 44  
            locationDesc: "215 Logan St."  
        },  
        {  
            ... # Another recognized location description  
        },  
        ...  
    ]  
}
```

Listing 1. The format for the returned result of a pre-annotator.

4.6 Resolving different annotations of messages

The administrators can resolve disagreements in the annotations of a message. One administrator can go to the resolving page of a project by clicking the “Resolve” button in the same row. After entering into the resolving page, different annotations of a message will be arranged in the horizontal direction (Figure 35). One can click one of the existing location descriptions. Then, its category and spatial footprint type will be shown, and its spatial footprint will be highlighted.

Under each annotation, there are two buttons to allow the user to accept one annotation or revise based on one annotation. If a user considers that one annotation is correct, one can click “Accept this annotation” to finish the resolution. One modal will show up to remind the user that this annotation will be accepted and cannot be edited any more (Figure 36). One can choose “Return” to work on resolving this message or “Continue” to go to the next message. If the user does not want to always see this modal, one can check the “Don’t show this message later” button.

If a user considers that none of the annotations is correct, the user can choose the closest one and click “Revise based on this annotation” to finish the resolution based on this annotation. Once this button is clicked, the system will go to a page to revise this annotation (Figure 37). This page will automatically load the location descriptions in the selected annotation. The user can resolve this annotation by adding new location descriptions, editing or deleting existing annotations. Once the user has finished revising this annotation, one can click “Finish and next” to submit. A modal similar to the one in Figure 36 will show up to remind the user that this annotation cannot be edited once it is submitted.

GALLOC

Home Sign out

Project name: HurricaneHarvey

Annotation from Tester1



Quick update: pregnant woman in labor on **San Angelo Street** has been finally transported by ambulance. #Harvey

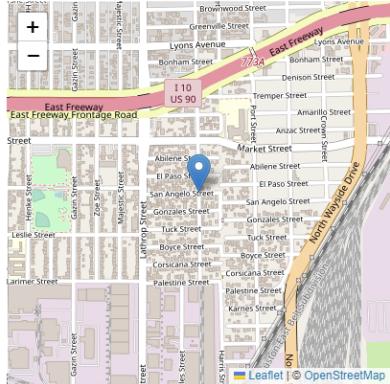
Category:

Spatial footprint type:

[Revise based on this annotation](#)

[Accept this annotation](#)

Annotation from Tester2



Quick update: pregnant woman in labor on **San Angelo Street** has been finally transported by ambulance. #Harvey

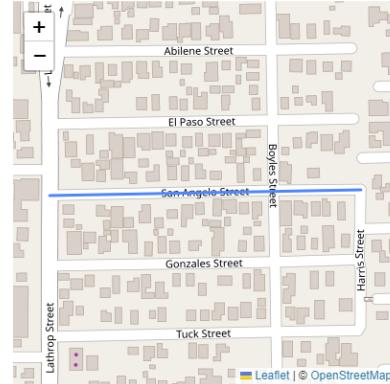
Category:

Spatial footprint type:

[Revise based on this annotation](#)

[Accept this annotation](#)

Annotation from Tester3



Quick update: pregnant woman in labor on **San Angelo Street** has been finally transported by ambulance. #Harvey

Category:

Spatial footprint type:

[Revise based on this annotation](#)

[Accept this annotation](#)

Figure 35. Different annotations added by different annotators are arranged in a horizontal direction.

GALLOC

Home Sign out

Project name: HurricaneHarvey

Annotation from Tester1

Quick update: pregnant woman in labor on **San Angelo Street** has been finally transported by ambulance. #Harvey

Category:

Spatial footprint type:

[Revise based on this annotation](#)

[Accept this annotation](#)

Accept this annotation

You want to accept this annotation? If Yes, please click 'Continue', and you will submit it and go to the next message to be resolved. If No, please 'Return' to continue to resolve annotations of this message.

Don't show this message later.

[Return](#)

[Continue](#)

Quick update: pregnant woman in labor on **San Angelo Street** has been finally transported by ambulance. #Harvey

Category:

Spatial footprint type:

[Revise based on this annotation](#)

[Accept this annotation](#)

Quick update: pregnant woman in labor on **San Angelo Street** has been finally transported by ambulance. #Harvey

Category:

Spatial footprint type:

[Revise based on this annotation](#)

[Accept this annotation](#)

Figure 36. A modal to remind the user that this annotation will be accepted to finish the resolution.

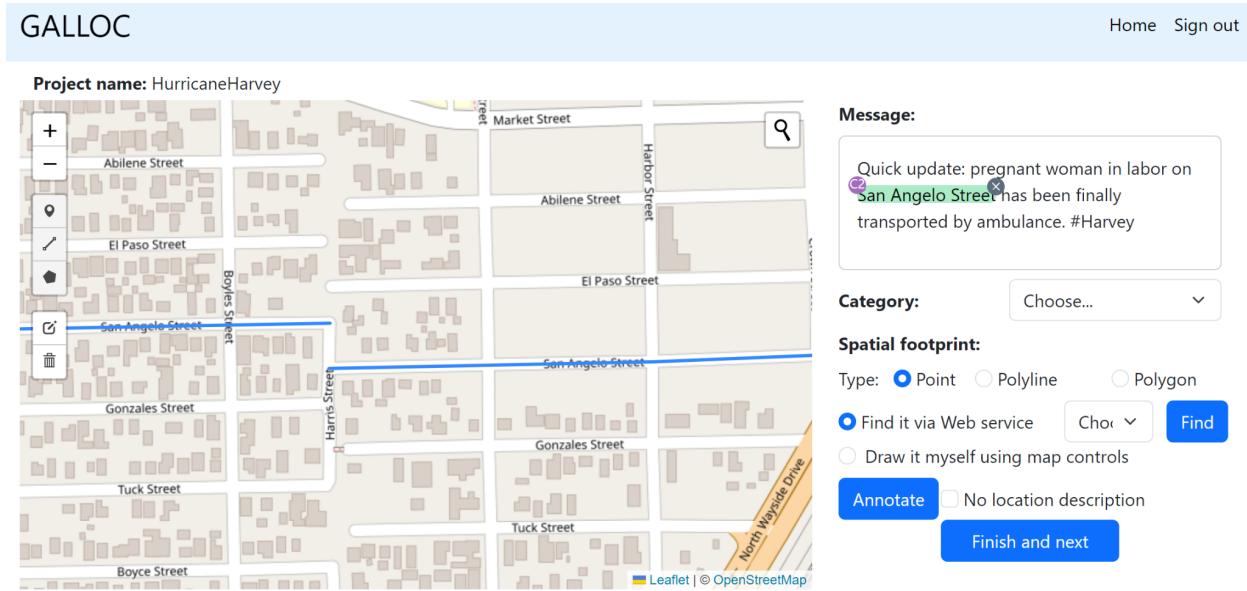


Figure 37. Page for revising based on the selected annotation.

When all disagreements in a project have been resolved, a modal will show up to tell the user this information and ask the user to return to the home page (Figure 38).

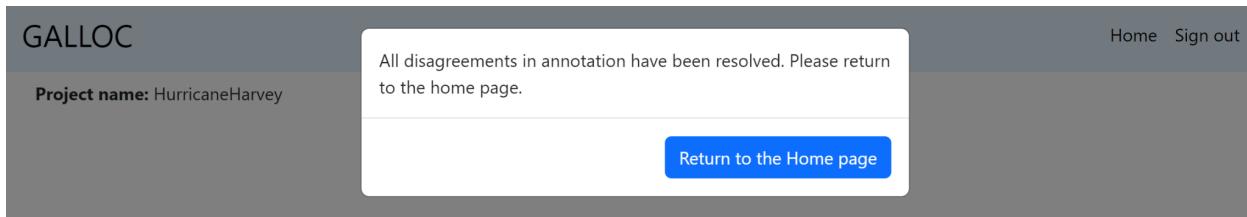


Figure 38. A modal showing up when all disagreements in a project have been resolved.

4.7 Checking status of a project

The administrators can also check the status of a project by clicking the “Check the status” in the same row. Then, a modal will appear to show the current status of this project (Figure 39). Basically, four numbers about the progress of this project will be shown.

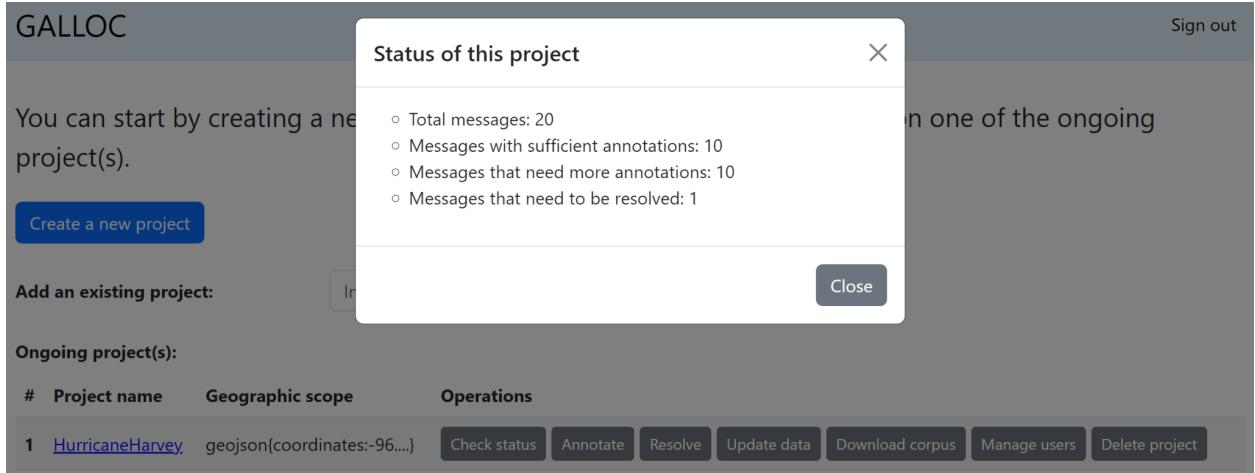


Figure 39. A modal for showing the status of a project.

4.8 Downloading corpus of annotated messages

The users can download the annotated messages of a project by clicking the “Download corpus” button in the same row. A modal will show up to allow the user to select which type of corpus one wants to download (Figure 40). GALLOC provides two types of corpus to be downloaded: 1) Corpus containing all the original annotations from annotators and the resolved annotations; 2) Corpus containing only those resolved annotations. The user can click one of these two buttons in the modal to download the corpus of “All annotations” or “Resolved annotations”. The annotations will be organized as a JSON file. Each line in this file is a JSON object, containing the text message, annotations, MessageID, and AnnotationID. Note that the corpus of all annotations will also contain an attribute of “Annotator” and an attribute of “Method” to differentiate the original annotation and the resolved annotation (Figure 41). The “Method” attribute value of an original annotation is “Annotate”, while its value of a resolved annotation is “Resolve”. The corpus containing only resolved annotations will not have these two attributes (Figure 42).

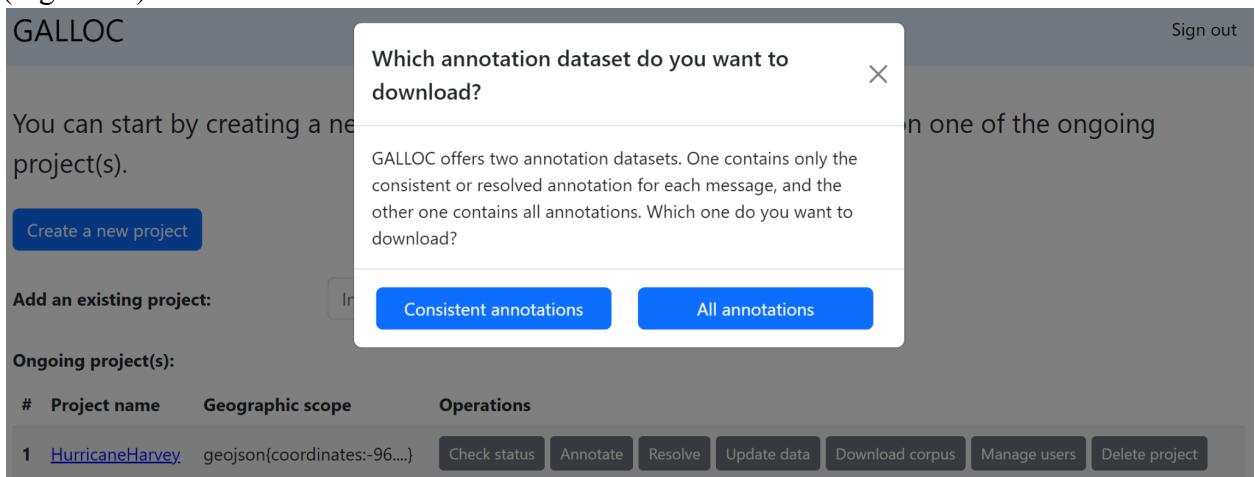


Figure 40. A modal for allowing the user to download two types of corpus.

```

1 [{"Annotator":"s","AnnotationID":"dnwgepfwobdmataypvuyitfmgdibvfpw","text":"TRAFFIC ALERT: FM 2770 at Bluff Street  
is closed. #Harvey #turnaroundsontdrown #budatx","Method":"Annotate","Annotation":[{"endIdx":38,"startIdx":15,  
"spatialFootprint":[{"geometry":[{"coordinates":[-97.847857,30.078627],"type":"Point"}],"type":"Point"}]},  
{"locationDesc":"FM 2770 at Bluff Street","locationCate":"C5: Intersections of roads (or rivers)" }],"MessageID":  
"lsldkcrlovxkfxudrkgnmutekmolvmin"}]  
2 {"Annotator":"s","AnnotationID":"biilbrejtimpbufaswpvtbyaabwxwq","text":"Water ponding on left lanes of  
eastbound I-10 at Loop 1604 (NW side). Approach with caution. #BeSafeDriveSmart #Harvey","Method":"Annotate",  
"Annotation":[{"endIdx":58,"startIdx":31,"spatialFootprint":[{"geometry":[{"coordinates":[-98.292317,29.465345],  
"type":"Point"}],"type":"Point"}],"locationDesc":"eastbound I-10 at Loop 1604","locationCate":"C5: Intersections  
of roads (or rivers)" }],"MessageID":"bzdcbjynvvsqryhpvgvoeajxwegkznji"}]  
3 {"Annotator":"s","AnnotationID":"rozgpmcdhxxovgygnlwkctuoafawelfta","text":"The @RedCross has opened a  
Greenspoint-area shelter at the M.O. Campbell Center. No one here yet. #Harvey https://t.co/Z14Lo2CYp8","Method":  
"Annotate","Annotation":[{"endIdx":79,"startIdx":59,"spatialFootprint":[{"geometry":[{"coordinates":[[-96.769752,  
32.862029],[-96.76975,32.861794],[-96.769727,32.861459],[-96.769563,32.861064],[-96.768605,  
32.861022],[-96.768487,32.861022],[-96.768219,32.862283],[-96.76785,32.863819],[-96.767703,32.864613],[-96.767704,  
32.864666],[-96.767725,32.864717],[-96.767766,32.864759],[-96.76782,32.864788],[-96.767883,32.8648],[  
-96.769002,32.864797],[-96.769077,32.864743],[-96.769222,32.86464],[-96.769246,32.864634],[-96.769277,32.864634],[-96.769297,  
32.864644],[-96.769317,32.864657],[-96.769387,32.86451],[-96.769576,32.863527],[-96.769716,32.862574],[-96.769752,  
32.862029]}],"type":"Polygon"}],"locationDesc":"M.O. Campbell Center","locationCate":"C8:  
Local organizations"}, "MessageID":"jszubktzqnhqkagdmferxjvlrpomly"}]  
4 {"Annotator":"s","AnnotationID":"hhujykuujhplhkfvdjwutcyqqgbclsq","text":"#BREAKING: significant flooding on  
Allen Parkway at Taft @KPRC2 #Harvey https://t.co/4NKYXzt1Me","Method":"Annotate","Annotation":[{"endIdx":56,  
"startIdx":35,"spatialFootprint":[{"geometry":[{"coordinates":[-95.385801,29.761136],"type":"Point"}],"type":  
"Point"}],"locationDesc":"Allen Parkway at Taft","locationCate":"C5: Intersections of roads (or rivers)" }],  
"MessageID":"gogpmthfrxwjpalaqitiyawbrmsyrv"}]  
5 {"Annotator":"s","AnnotationID":"weigrxaztgsczylvushiqmirmqpbswy","text":"Streaming #harvey #houwx Clear Lake  
City Blvd at Space Center Blvd. https://t.co/r50ketGas4 no house flood yet but it's close.", "Method":"Annotate",  
"Annotation":[{"endIdx":66,"startIdx":25,"spatialFootprint":[{"geometry":[{"coordinates":[-95.138125,29.592118],  
"type":"Point"}],"type": "Point"}],"locationDesc":"Clear Lake City Blvd at Space Center Blvd","locationCate":"C5:  
Intersections of roads (or rivers)" }],"MessageID":"aaahykheaghezxmtyaorjfxnrgbgorjuz"}]
```

Figure 41. An example of downloaded corpus containing all annotations.

```

1 [{"AnnotationID":"bdvxzuoeaxlcqglssqcnewkukitsq","text":"Water ponding on left lanes of eastbound I-10 at Loop  
1604 (NW side). Approach with caution. #BeSafeDriveSmart #Harvey","Annotation":[{"endIdx":68,"startIdx":41,  
"spatialFootprint":[{"geometry":[{"coordinates":[-98.598639,29.59081],"type":"Point"}],"type": "Point"}]},  
{"locationDesc":"I-10 at Loop 1604 (NW side)","locationCate":"C5: Intersections of roads (or rivers)" }],"MessageID":  
"bzdcbjynvvsqryhpvgvoeajxwegkznji"}]  
2 {"AnnotationID":"ffyfylsehogetyyleudovcvnjvumfng","text":"The @RedCross has opened a Greenspoint-area shelter at  
the M.O. Campbell Center. No one here yet. #Harvey https://t.co/Z14Lo2CYp8","Annotation":[{"endIdx":79,"startIdx":59,"spatialFootprint":[{"geometry":[{"coordinates":[-95.359976,29.932419],"type":"Point"}],"type": "Point"}]},  
{"locationDesc":"M.O. Campbell Center","locationCate":"C7: Other humanmade features"}, "MessageID":  
"jszubktzqnhqkagdmferxjvlrpomly"}]  
3 {"AnnotationID":"weigrxaztgsczylvushiqmirmqpbswy","text":"Streaming #harvey #houwx Clear Lake City Blvd at Space  
Center Blvd. https://t.co/r50ketGas4 no house flood yet but it's close.", "Annotation":[{"endIdx":66,"startIdx":25,"spatialFootprint":[{"geometry":[{"coordinates":[-95.138125,29.592118],"type":"Point"}],"type": "Point"}]},  
{"locationDesc":"Clear Lake City Blvd at Space Center Blvd","locationCate":"C5: Intersections of roads (or rivers)" }],"MessageID":  
"aaahykheaghezxmtyaorjfxnrgbgorjuz"}]  
4 {"AnnotationID":"hhujykuujhplhkfvdjwutcyqqgbclsq","text":"#BREAKING: significant flooding on Allen Parkway at  
Taft @KPRC2 #Harvey https://t.co/4NKYXzt1Me","Annotation":[{"endIdx":56,"startIdx":35,"spatialFootprint":[{"geometry":[{"coordinates":[-95.385801,29.761136],"type":"Point"}],"type": "Point"}]},  
{"locationDesc":"Allen Parkway at Taft","locationCate":"C5: Intersections of roads (or rivers)" }],"MessageID":  
"gogpmthfrxwjpalaqitiyawbrmsyrv"}]  
5 {"AnnotationID":"dnwgepfwobdmataypvuyitfmgdibvfpw","text":"TRAFFIC ALERT: FM 2770 at Bluff Street is closed.  
#Harvey #turnaroundsontdrown #budatx","Annotation":[{"endIdx":38,"startIdx":15,"spatialFootprint":[{"geometry":  
["coordinates":[-97.847857,30.078627],"type":"Point"}],"type": "Point"}],"locationDesc":"FM 2770 at Bluff Street",  
"locationCate":"C5: Intersections of roads (or rivers)" }],"MessageID":"lsldkcrlovxkfxudrkgnmutekmolvmin"}]
```

Figure 42. An example of downloaded corpus containing only resolved annotations.