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# Using BOAM to post meteor data from UFOAnalyzer into the Virtual Meteor Observatory.

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In 2010, a French meteor database called "BOAM" was created. During the preparation of the 2011 International Meteor Conference, we have studied the possibility to write a program to export BOAM data to the Virtual Meteor Observatory. After nearly one year of work, we are ready to export our data.

## 1 Development of the database

In 2010, a French meteor database called "BOAM" (*Base des Observateurs Amateurs de Météores* or Database of Amateur Meteor Observers)[1] was created (Leroy et al., 2011). At the 2011 International Meteor Conference, we have set ourselves the goal to write a program to export BOAM data to the Virtual Meteor Observatory (VMO)[2]. After nearly one year of work, we can report that we have succeeded.

The first step that was taken to achieve this goal was creating a new format for our database, which we called "BOAM2". The new database allows managing multi-object detections in the UFOAnalyzer XML file and saving all fields, with exception of the objpath part. (Notice that BOAM saved only a few selected fields.) Before accepting any data, BOAM2 checks all fields, in particular for their consistency (for example, with regard to station characteristics or changes in the camera's field of view). When the data is accepted, BOAM2 is able to create XML files that conform to the VMO file format (Barentsen et al., 2010). At this time, BOAM and BOAM2 work in parallel, but in the future, BOAM will be discontinued. This transition will of course be fully transparent to the users of these databases.

## 2 Exporting BOAM2 data to the VMO

To post in BOAM2, observers use free software, named PostUfo, written by J. Brunet[3].

When the data are accepted, the managers of the database are able to create the XML file to be posted to the VMO.

The structure of BOAM2 is visualized in Figure 1.

Each observer id is referenced in the VMO, and, in the structure of BOAM2, we have a table to identify the camera, location, and the observer with the same id. Then, data are extracted from `record_fields` and `object_fields` in the UFO XML file and exported into the VMO XML file. We can add some filters to select better-quality observations, for example to check the number of reference stars used for astrometry computations. Each VMO XML file contains all detections of one night for one station as requested by the feedback of Geert Barentsen.

The "Create VMO XML file" program is written in the PHP language. The current version is a beta version which still needs some improvements. The final version will be available when an XML file will be successfully posted in the VMO database. The PHP code can be obtained on request; please contact Stéphane Jouin.

Through a log file, it is checked if the XML file is correctly created (see Figure 2). First the program checks the date and then connects to BOAM2. A list of records from `record_table` is created with current observers only. After checking if `camera session_table` and `location_table` are the same as in the VMO reference table, the program creates the XML file. We have noticed that the UFOAnalyzer shower codes are quite different from the IMO shower codes. The program converts this information in the correct format. Also, UFOAnalyzer does not give the time of the meteor, but it can be calculated from other UFOAnalyzer fields. This is also something that must be improved.

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[1] http://boam.fr.

[2] http://vmo.imo.net/ftp/documentation/vmo_camera_20090930.pdf.

[3] http://boam.fr/PostUFO/PostUFO.htm. English version in preparation.
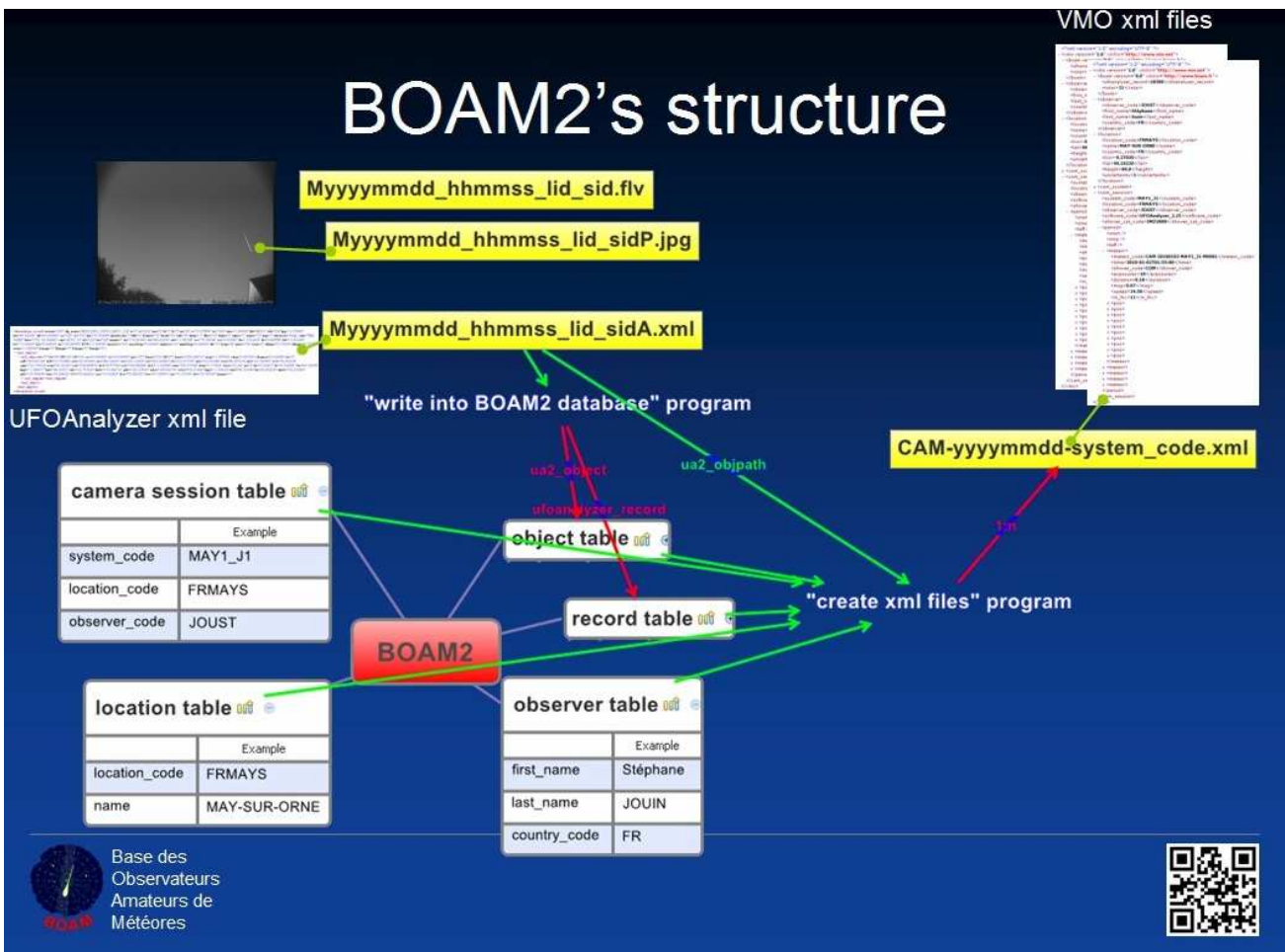
*Figure 1* – Structure of BOAM2.



*Figure 2* – Log file produced during the creation of the VMO XML file.

## 3    Conclusions

Several UFOAnalyzer fields are compatible with mandatory fields requested by the VMO file format (Barentsen et al., 2010). The PHP code of our conversion program still needs some optimizations, but it works

and it is ready for testing with the VMO interface when the latter is available. We also note that the code is easily transposable for other databases.

We have already emailed an XML file and received positive feedback from Geert Barentsen. Now we are waiting to participate in testing the VMO XML interface.

## References

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