IMBIE Phase II

– IMBIE Web Portal Description Document –

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Reviewed and Approved by: Mònica Roca
16 January 2017
Activity: IMBIE Phase II
Change Record

<table>
<thead>
<tr>
<th>Date</th>
<th>Issue</th>
<th>Section</th>
<th>Comment</th>
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<tr>
<td>16 January 2017</td>
<td>1.a</td>
<td>all</td>
<td>First issue.</td>
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Distribution List

<table>
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<tr>
<td>ESA</td>
<td>Marcus Engdahl</td>
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1 INTRODUCTION

1.1 Scope

The purpose of this document is to describe the IMBIE web portal, which will accommodate the registration of the participants in the experiment, their data submissions and will provide access to the experiment results.

1.2 Applicable Documents

AD. 1 “Proposal for the ESA-NASA Ice sheet Mass Balance Inter-comparison Exercise (IMBIE) Phase II”
2 \hspace{1cm} \textbf{FRONT-END DESCRIPTION}

The IMBIE web portal, \url{http://imbie.org/}, presents the following information:

1. Introduction of the experiment, as well as past and future assessments.

2. Presentation of the news and information about the status of the project.

3. The IMBIE 2012 experiment, its participants and results.

4. The current IMBIE 2016 experiment, with the conditions and definitions, list of participants and the executive committee. Participants are grouped per technique: Altimetry, Gravimetry, Mass Budget, Surface Mass Balance and Glacial Isostatic Adjustment.

In the frame of the current IMBIE 2016 experiment, there were two temporary functionalities that are no longer available:

5. Registration (mid July to mid August 2016): it covered the procedure to register to the IMBIE 2016 experiment by means of a questionnaire. There was a different questionnaire for each one of the technique groups.

6. Data submission (mid October to mid November 2016): only available to registered participants, it allowed them to submit their data to the portal. The fulfillment of another questionnaire was required, in order to explain and define the data. As with the registration, a different questionnaire was used for each one of the technique groups.

The main page of the website is shown in Figure 1.

![Figure 1. IMBIE website main page](image-url)
## 2.1 Website structure

This section describes the website map structure. Table 2-1 lists the items of the menu in the main page, and their subsections. These subsections will be displayed as a pull-down menu, once the mouse pointer is over the menu item.

<table>
<thead>
<tr>
<th>Menu item</th>
<th>Subsection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home</td>
<td>(None)</td>
</tr>
<tr>
<td>About IMBIE</td>
<td>Sea level rise</td>
</tr>
<tr>
<td></td>
<td>Past assessments</td>
</tr>
<tr>
<td></td>
<td>The IMBIE assessment</td>
</tr>
<tr>
<td></td>
<td>Future assessments</td>
</tr>
<tr>
<td>IMBIE 2012</td>
<td>Participants</td>
</tr>
<tr>
<td></td>
<td>Experiments</td>
</tr>
<tr>
<td></td>
<td>Results</td>
</tr>
<tr>
<td>IMBIE 2016</td>
<td>Executive committee</td>
</tr>
<tr>
<td></td>
<td>Participants</td>
</tr>
<tr>
<td></td>
<td>Drainage basins</td>
</tr>
<tr>
<td></td>
<td>File formats</td>
</tr>
<tr>
<td></td>
<td>Participate</td>
</tr>
<tr>
<td></td>
<td>Data submission</td>
</tr>
<tr>
<td>Data downloads</td>
<td>(None)</td>
</tr>
<tr>
<td>News</td>
<td>Publications</td>
</tr>
<tr>
<td></td>
<td>Presentations</td>
</tr>
<tr>
<td></td>
<td>News stories</td>
</tr>
<tr>
<td></td>
<td>For the media</td>
</tr>
<tr>
<td>Links</td>
<td>(None)</td>
</tr>
</tbody>
</table>
2.2 IMBIE 2016 pages description

This section elaborates on the web pages that have been created specifically for the IMBIE 2016 experiment.

A brief description of the IMBIE 2016 experiment can be displayed when clicking on the IMBIE 2016 menu entry or, equivalently, here http://imbie.org/imbie-2016/. The Table 2-2 describes shortly each of the subsections under the IMBIE 2016 menu entry.

Table 2-2: IMBIE 2016 subsections description

<table>
<thead>
<tr>
<th>IMBIE 2016 subsection</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive committee</td>
<td>List of the project leaders, group leaders and the rest of the so-called executive committee.</td>
</tr>
<tr>
<td>Participants</td>
<td>List of the participants that have registered to the IMBIE 2016 experiment, organised per technique groups.</td>
</tr>
<tr>
<td>Drainage basins</td>
<td>It contains the definition of the two sets of grounded ice area and drainage basins that will be used in the data (Zwally, Rignot).</td>
</tr>
<tr>
<td>File formats</td>
<td>This section defines the file formats of the data that will be submitted.</td>
</tr>
<tr>
<td>Participate</td>
<td>When the registration period was open, this section had a link to the registration site. More details in §2.2.1. Currently, it contains the participation conditions and two links for the group leaders with the overview of the registered participants and with the participants answers to the registration questionnaires.</td>
</tr>
<tr>
<td>Data submission</td>
<td>When the data submission period was open, this section had a link to the uploads site. More details in §2.2.2. Currently it only indicates the upload portal is closed.</td>
</tr>
</tbody>
</table>

2.2.1 Registration process

The registration process for the IMBIE 2016 experiment was open between mid July and mid August 2016.

The registration page would present the experiment, the conditions and rules of participation, and then, for each different technique group, would require the participant’s personal information and the description of the participant’s data.

Figure 2 and Figure 3 show the group selection and the participant’s details step of the questionnaire.
2.2.2 Data submission process

The data submission process for the IMBIE 2016 experiment was open between mid October and mid November 2016.

The uploads portal page would require a login, so in order to access here the participant must have registered previously in the 2016 experiment (§2.2.1).
Once logged in, the participant had access to the corresponding technique group submission questionnaire. This would require the participant to describe the data and to upload the data files. Only one dataset was allowed per registered participant, as specified in the experiment rules.

After the data and questionnaire were submitted, the participant had the option to remove or edit the questionnaire or data files.

Figure 4 and Figure 5 show, for the Glacial Isostatic Adjustment group, the step of the questionnaire where the data files upload is required and the summary of the data submission, respectively.

![Glacial Isostatic Adjustment Group]

Figure 4 Data submission – GIA data upload page
IMBIE 2016

Glacial Isostatic Adjustment Group

Uploaded Submissions

Submission Date: October 10 2016 10:04:17 (CET)
Submission Size: 6.90 MB

Methods Description
- Whitehouseetal12b.pdf

Data Files
- urate_R_v1.txt
- grade_R_v1.cim
- README_v1.txt
- README_v1.txt

Additional Experiments
- Review Questionnaire Answers
- Delete Submission
- Edit Submission

Figure 5 Data submission – upload summary page
3 BACK-END DESCRIPTION

In the server side, two main things are managed:

1. Information of the registered participants.
2. Submitted datasets.

3.1 Back-end: information of the registered participants

During the IMBIE 2016 registration period, the information that was introduced by the participants was stored into a MySQL database. Contact details of the participants as well as username and passwords, which will be used for the uploads portal login, and answers to the registration questionnaire are among this information.

The details of the participants and their answers to the questionnaire are available to the group leaders. In addition to this, the statistics about the registration are also available.

The registration statistics page is available in http://imbie.org/imbie-registration/report and contains tables and plots describing the participants answers, such as number of participants per group, or type and number of datafiles that could be provided. Figure 6, Figure 7 and Figure 8 shows some of these tables and plots.

<table>
<thead>
<tr>
<th>Name</th>
<th>Institute</th>
<th>Group</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>van Wessem, Melchior</td>
<td>IAMAGUU</td>
<td>SMB</td>
<td>2016-06-27 10:54:35</td>
</tr>
<tr>
<td>Scambos, Ted</td>
<td>National Snow and Ice Data Center</td>
<td>IOM</td>
<td>2016-06-28 01:49:44</td>
</tr>
<tr>
<td>Shepherd, Andrew</td>
<td>university of Leeds</td>
<td>RA</td>
<td>2016-07-01 17:48:69</td>
</tr>
<tr>
<td>Schremer, Ernst</td>
<td>TU Delft</td>
<td>GMB</td>
<td>2016-07-04 13:32:29</td>
</tr>
<tr>
<td>Falk, Ulrike</td>
<td>Climate Lab, Geographer FB00, Univ. Bremen</td>
<td>SMB</td>
<td>2016-07-04 14:46:04</td>
</tr>
<tr>
<td>Tarasov, Lev</td>
<td>Memorial University of Newfoundland</td>
<td>GIA</td>
<td>2016-07-04 15:50:12</td>
</tr>
<tr>
<td>Leclaireau, Benoit</td>
<td>Memorial University of Newfoundland</td>
<td>GIA</td>
<td>2016-07-04 15:54:48</td>
</tr>
<tr>
<td>Barletta, Valentina Roberts</td>
<td>DTU Space</td>
<td>GIA</td>
<td>2016-07-04 16:20:68</td>
</tr>
<tr>
<td>Langen, Peter</td>
<td>Danish Meteorological Institute</td>
<td>SMB</td>
<td>2016-07-05 10:02:69</td>
</tr>
<tr>
<td>Fittweiss, Xavier</td>
<td>University of Li</td>
<td>SMB</td>
<td>2016-10-26 13:37:08</td>
</tr>
</tbody>
</table>

Figure 6 Registration statistics – participants list
The registration statistics page is available in [http://imbie.org/imbie-registration/report](http://imbie.org/imbie-registration/report) and contains tables and plots describing the participants’ answers, such as number of participants per group, or type and number of datafiles that could be provided. Figure 6, Figure 7 and Figure 8 shows some of these tables and plots.

The answers to the registration questionnaire are available in the webpage [http://imbie.org/imbie-registration/answers](http://imbie.org/imbie-registration/answers) and contains, for each technique group, the answers that were provided by the participants. They can be displayed either by questions (Figure 9) or by participants (Figure 10).
3.2 Back-end: submitted datasets

In the IMBIE 2016 data submission period, the datasets and their description that were uploaded by the participants are stored in the server. These files are organised by technique groups and by participant, and are the main input of the IMBIE 2016 assessment.

There is not a dedicated webpage for the group leaders to access the participant’s data. Instead, after the data submission period is finished, the data is zipped and sent to each one of the group leaders so they can inspect it.
When submitting the data, the participant needs to answer a list of questions to describe the data. This answers are stored along the participant’s data, in a JSON text file. XXX shows an example of this file.

```
{"username": "vellcogna",
 "group": "GMB",
 "contact": {
   "forename": "Isabella",
   "lastname": "vellcogna",
   "organisation": "University of California Irvine",
   "email": "isabella@uci.edu",
   "phone": "9493516063"
 },
 "files": {
   "spherical-harmonics-upload": {
     "name": "vellcogna_imbie2_results_major_regions_2003-2015.txt",
     "size": 61295,
     "field": "spherical-harmonics-upload",
     "type": "required"
   },
   "methods-and-errors": {
     "size": 1867641,
     "field": "methods-and-errors",
     "type": "supporting"
   },
   "no-gla-upload": {
     "name": "vellcogna_imbie2_results_major_regions_case1_2003-2015.txt",
     "size": 64131,
     "field": "no-gla-upload",
     "type": "additional"
   },
   "no-degree-upload": {
     "name": "vellcogna_imbie2_results_major_regions_case2_2003-2015.txt",
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     "field": "no-degree-upload",
     "type": "additional"
   },
   "no-c20-upload": {
     "name": "vellcogna_imbie2_results_major_regions_case3_2003-2015.txt",
     "size": 64109,
     "field": "no-c20-upload",
     "type": "additional"
   },
   "mascons-approach-upload": {
     "name": "vellcogna_imbie2_mass_change_major_regions_2003-2015.txt",
     "size": 1492,
     "field": "mascons-approach-upload",
     "type": "required"
   }
}
```

Figure 11 Data submission answers for a participant
End of the document