Draft Minutes of an ASTROTROP Planning Meeting
Royal Observatory, Edinburgh 22 January 2015

1. **Present**: Alan Grainger, Andy Lawrence, Keith Noddle

2. **Aim**. The aim of the meeting was to review progress made in 2014 and discuss revisions to the Project Plan for the remainder of the project.

3. **Evaluation Study in 2014**.

a. *Allocation of Roles*. Andy expressed concern that TROPGLOBE partners had expected the ROE team to do all of the work in Year 1 in evaluating AstroGrid for use by geoscientists and identifying the adaptations needed for this use. Alan appreciated that this was a flaw in the original plan, which assumed that after exposure in Conference 1 to details about the formatting of databases held by TROPGLOBE partners, ROE staff would have sufficient information to undertake their evaluation study. He pointed out that the original plan assumed that in Year 1 TROPGLOBE partners would undertake an important parallel activity of their own: using informal exchanges of data to build a cohesive community of tropical forest researchers from the rather compartmentalised sub-communities that exist at the moment. This too was crucial to achieving successful collaboration between all members of TROPGLOBE in Year 2.

Once this flaw in the plan had been identified, in July 2014, the three Co-PIs had tried various strategies to move towards a joint approach to evaluation that involved TROPGLOBE partners as well as ROE and other AstroGrid partners. This joint approach had eventually provided the basis for the progress in the evaluation study made in the latter part of 2014.

Actions: Alan mentioned that Kevin Tansey was keen to visit Edinburgh to spend some time with Dave Morris to sort out any remaining problems. Andy and Keith welcomed this and said they would identify suitable time slots.

b. *Obstacles to Sharing Data*. Keith said that Dave Morris was continuing to make good progress in the Evaluation Study, but had encountered a major obstacle when trying to understand the formatting of a database held by one of the TROPGLOBE partners: he was told that this was proprietary information that could not be released to outsiders. On the other hand, the partner did say that they were hoping to add meta data to their data themselves; this would help to make the data accessible to collaborating scientists in ASTROTROP but the partner had not had time to do this yet.

Actions: Alan promised to into this matter, and asked for any future incidents of this kind to be reported to him so he could contact the TROPGLOBE partners involved and sort out the problem.

4. **Evaluation Study and Production of Demo Software in 2015**.

a. *Demo Software*. Andy emphasized that AstroGrid was not a single piece of software, but a combination of a number of pieces of software, and while some of these might be useful for geoscientists, others might not. There was a detailed discussion of particular pieces of software and the modifications and information that would be required to make them suitable for demonstration activities in Year 2 of the project. These selected pieces of software, together with related sets of standards, would constitute the *Demo Software* to be used in Year 2. (Keith said that half of the effort in constructing AstroGrid had involved agreeing on standards. So whereas some adaptations to software would be necessary to use AstroGrid in a Pan-Tropical Forest Observatory, many of the standards would be more directly applicable to geoscientists).

Actions: Proposals for the most suitable selection of software components and related standards could be made in the Evaluation Study and discussed at the Leeds Workshop.

b. *Registry***.** Keith first highlighted the importance of the Registry, which is Astrogrid's equivalent of the Yellow Pages. It shows what data are available for sharing via Astrogrid. The key requirement is for TROPGLOBE partners to (a) register their data, and (b) attach metadata to their data, to make potential users aware of the attributes covered, data quality etc. If a select number of TROPGLOBE partners can take these two actions then this will generate the Registry and show its feasibility for use in a Pan-Tropical Forest Observatory. Once this core group of partners have done this, this will encourage other partners to follow suit and therefore widen the scope of the Registry.

Actions: Alan will, in consultation with other TROPGLOBE partners, identify a potential set of core TROPGLOBE data partners.

c. *Table Access Protocol*. Another piece of software is the Table Access Protocol (TAP), which provides a standard method for interrogating databases listed in the Registry and can translate queries into the various query languages used by individual databases. TOPCAT, "an interactive graphical viewer and editor for tabular data", is TAP-compliant. There was discussion about the extent to which TROPGLOBE partners would, in *demonstration activities* (as opposed to an operational Pan-Tropical Forest Observatory), need to send queries to databases to "cookie cut" the data they needed from the larger set of data, e.g. by identifying the latitude and longitude coordinates of a piece of forest, e.g. a small part of Amazonia. Alan suggested that this step might be circumvented by extracting data for the whole area covered by the database, but this need could be discussed further. In an operational Pan-Tropical Forest Observatory, interrogation would be a key activity, especially to identify which of many biodiversity databases has data on particular plant species, genera or families.

Actions: The scope of querying functions needed for various types of data, and the need for query software, could be discussed in the Leeds Workshop.

d. *Aladin***.** Alan said that in Year 2 of ASTROTROP a more crucial demonstration activity than interrogating databases would be to overlay geo-referenced data for the same area from different databases, e.g. area and carbon or area and biodiversity, and then undertook analysis. This would require the following operations: (a) finding; (b) fetching; and (c) standardising. Users can choose their own standards for data storage and processing but toolkits are needed that can extract data in formats compatible with formats of user software. Keith said that Aladin should be able to do the overlaying function. Because TROPGLOBE partners who share data will already know from which partner the additional data will come, use of the Registry will be a relatively routine part of the demonstration in comparison with use of Aladin.

Actions: Could Andy or Keith please clarify whether the toolkits are to be attached to the databases or to the client software?

e. Responding to a question from Alan, Keith said that Astrogrid did not explicitly use cloud services, as these were too expensive. Using a smart dropbox also had the advantage that users know the locations of data that they use.

5. **Design of Demonstration Activities**. There was general agreement that the original plan for relying on voluntary and self-organised demonstration activities using AstroGrid was probably not realistic, given the apparent lack of informal sharing of data between TROPGLOBE partners in Year 1 of the project. Instead, it would be more feasible for the Co-PIs to approach selected partners to collaborate in a small number of demonstration activities. These 'bite-size chunks' of collaboration will be far easier to manage than relying on dispersed collaboration activities throughout the TROPGLOBE network. However, once the core data partners have established suitable interfaces there will be nothing to stop other partners from sharing their data and expanding demonstration activities beyond the core if they wish.

Actions: Alan will take responsibility for identifying these demonstrator partnerships.

Alan explained that TROPGLOBE partners had already anticipated this change in approach by submitting multiple Horizon 2020 bids during 2014 that could provide the nuclei for such partnerships in 2015. Successful bids would provide the funding necessary to employ personnel to undertake demonstration activities, and thereby fill the gap in funding from the ASTROTROP project. The University of Leicester had already been successful in a GlobBiomass bid to the European Space Agency and was keen to use this to contribute to ASTROTROP. This contribution is crucial to ASTROTROP because the two CLASP areas which we are committed to tackling are "automated ecosystem monitoring" and "carbon emissions". Partners who merely extend their current overlay functions into virtual demonstration activities will find it easiest to participate in Year 2.

6. **Revising the Project Timetable**.

a. *Overall Timetable.* Andy said that the current deadline for producing the Demo software was May 2015. It was agreed that the Demo software would be shared in the Leeds Workshop in May 2015 with the core group of partners who will undertake demonstration activities, i.e. attendance will be by invitation only. If Conference 2 is held in January 2016 this will allow at least 7 months for demonstration activities using the Demo software, and this was felt to be sufficient. The Final Report will be submitted in February 2016.

b. *Immediate Steps*. A discussion was held concerning meetings before the Leeds Workshop. It was proposed that a brainstorming group will meet via Skype in late February to discuss the draft Evaluation Report that is currently scheduled to be completed in early February. This meeting could comprise the core data partners who will catalyse design of the Registry element etc. A draft of the Demo software could then be produced by the middle of March. The Steering Committee could meet by Skype in the middle of March to discuss the design of Demonstration activities, identify any revisions needed to the draft Evaluation Report, and plan the agenda for the Leeds workshop, The Evaluation Report could be finalised in April and the working Demo software could be ready by mid-May, for demonstration at the Leeds Workshop.

Actions:

i. Keith will revise the Revised ASTROTROP Plan circulated on 12 December in the light of the discussions at this meeting.

ii. In view of the need to allow as much time as possible for demonstration activities, the two Skype meetings could keep under continuous review progress in finalizing the Evaluation Report and Demo software, and hence the optimum timing of the Leeds Workshop.

7. **Interface and Incubator Groups**. Alan proposed that deliverables associated with the Interface Groups and Incubator Groups could be achieved by: (a) holding at least one Interface Workshop to examine how geoscientists can learn from astronomers - University of Leicester has offered to host one such workshop (would RoE be interested in collaborating with University of Edinburgh to host another workshop in Scotland?); (b) holding at least one Incubator Workshop.

Actions: Alan will liaise with Kevin Tansey on organizing the Leicester Interface Workshop, and will liaise with the University of Cambridge/University of York, and DMCII, on organizing Incubator Workshops.

8. **Finance**. Alan suggested that the costs of these workshops, and of other meetings, should be planned by taking into account the need for any increases in personnel costs required to adapt Astrogrid in the light of the findings of the Evaluation Study. On the positive side, he suggested that further successes in bids for other projects intended to ensure follow-up activities after ASTROTROP

ends could provide additional funds even within the lifetime of ASTROTROP. Andy said that the main constraint on ROE activities was people, not money. Alan mentioned that the new projects could help with personnel too.

Actions: Andy, Keith and Alan to liaise on any budget adjustments.

9. **Extending the Project**. It was agreed to apply to STFC for a 6 month extension to allow for the delays to activities originally planned for Year 1. Alan said that informal encouragement to apply for an extension had already been received from STFC but that a formal application via JeS was required.

Actions: Alan agreed to investigate the JeS process and report back (a) if it had to be conducted by ROE rather than the University of Leeds; and (b) if any additional information other than that supplied to STFC would be needed.