



# 2020 Busy Week Summary

Version 1.0 – 18/03/2020 – T. Westmeier

## Introduction

This document briefly summarises the main discussion points from the WALLABY Busy Week in Perth during the week of 2-6 March 2020. Further information about the Busy Week is available at the following locations:

Official website: <https://www.icrar.org/conferences/wallaby-busy-week-2020/>

Redmine wiki: (hidden)

Presentations: (hidden)

## Monday, 2 March

The kinematics working group held a special break-out session on Monday afternoon to discuss issues related to the kinematics modelling of resolved galaxies.

## Tuesday, 3 March

### Data processing and imaging

[Karen Lee-Waddell](#) and [Jonghwan Rhee](#) gave updates on the issues of flagging and continuum subtraction, high-resolution postage stamps and the RFI situation below 1.3 GHz.

- *The full Hydra pilot survey field has been imaged and mosaicked; source finding and quality control will need to happen next (see Fig. 1).*
- *An option for flagging individual beams on individual antennas would be useful, likewise time-based flagging of time-dependent RFI or technical issues.*
- *What is the science driver for 10" postage stamps? Given the low surface brightness sensitivity at 10" resolution, would 20" be a better compromise between resolution and sensitivity?*
- *There are several RFI-free windows below 1.3 GHz that could potentially be salvaged despite the bad RFI situation. This would require time-based flagging, though, as there is still some intermittent RFI.*

### Ancillary data and simulations

[Adam Stevens](#) gave an overview of his simulations work and how the simulations could be utilised to aid WALLABY science. [Christian Wolf](#) gave an update on SkyMapper DR3 and an overview of the image products that have been released.

- *Creating homogenised ancillary data resources for scientific analysis would be desirable.*

## Wednesday, 4 March

### Source finding and parameterisation

[Tobias Westmeier](#) gave an overview of the new SoFiA 2 source finding pipeline and its performance.

- *In addition to blind source finding, should we also extract sources based on optical priors?*

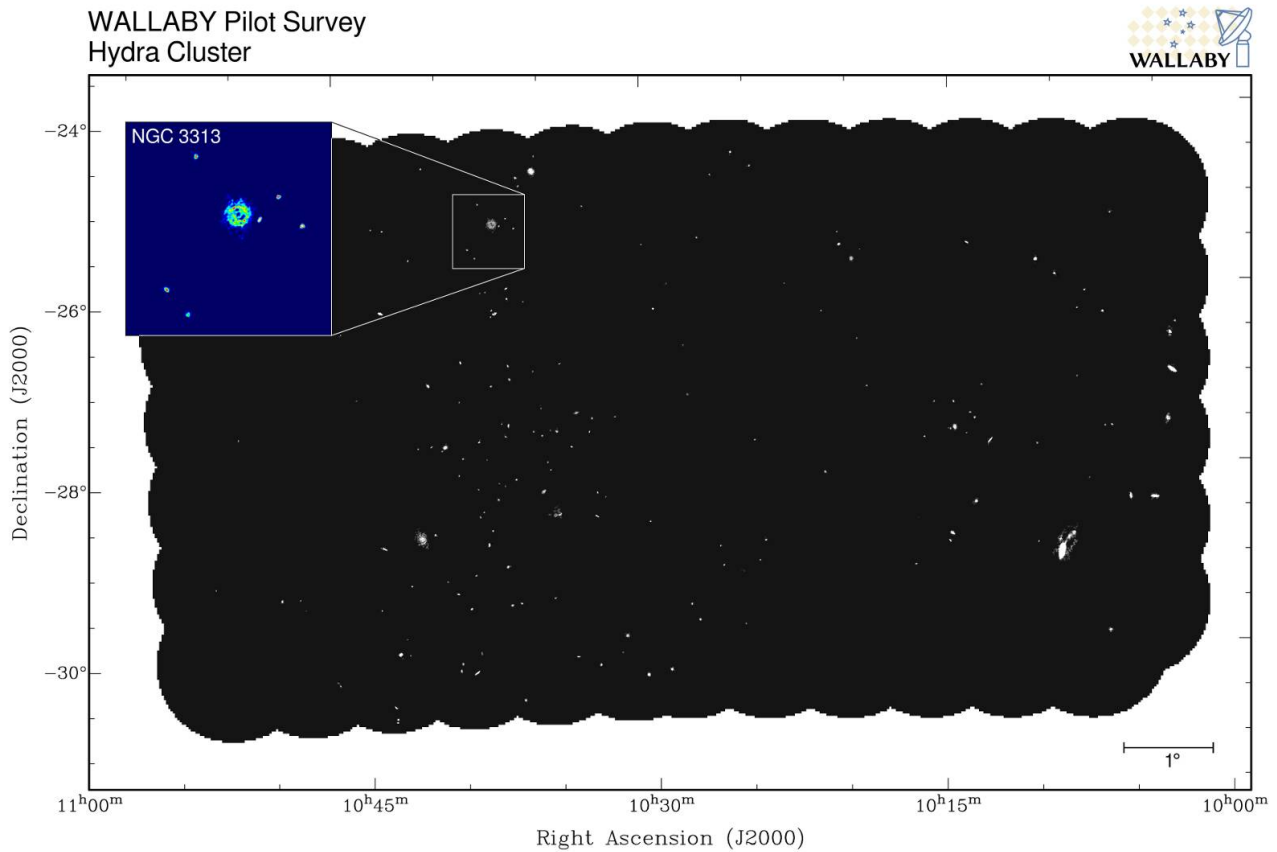


Figure 1: Preliminary moment-0 map from SoFiA 2 of the Hydra pilot survey data presented at the Busy Week.

## Kinematics pipeline

[Nathan Deg](#) gave an update on the current plans for implementing the WALLABY kinematics pipeline. [George Bekiaris](#) gave an overview of his galaxy kinematics modelling software GBKFIT.

- *Should the HI data be cleaned at all, or would we be better off by not cleaning, thereby avoiding the non-linear effect of cleaning on our data?*

## Thursday, 5 March

### Archiving and databases

[Kristine Spekkens](#) and [Matthew Whiting](#) gave updates on the status of CIRADA and CASDA, respectively. [Susana Sánchez](#) gave an overview of the IAA-CSIC SKA regional centre prototype and other data-related work carried out by her group.

- *CARTA: large-scale data cube visualisation project led by NRAO (<https://cartavis.github.io/>).*
- *Planned CIRADA contributions to WALLABY: (1) fitting of rotating disc models; (2) resolved galaxy archive and visualisation; (3) produce and release algorithms.*
- *How do we ensure a common user experience across different services (CASDA, CIRADA, etc.)? How do we cross-link between archives and services? Should there be a unified user interface?*
- *How do we handle multiple instances of the same data, e.g. a moment-0 map produced by SoFiA and a moment-0 map from Séavy?*
- *CASDA is not currently capable of linking to other, external data, as it is merely intended as a storage archive. CASDA uses DOIs to track data provenance.*

- *We may need a way of distributing pre-level 7 data of some fraction of the full WALLABY catalogue prior to public release.*
- *The IAA-CSIC SKA regional centre prototype can provide expertise in the areas of OpenScience, FAIR and VO and potentially assist WALLABY with computing capacity, raw data storage and VO-accessible catalogues.*
- *The creation of a new WALLABY technical working group on data archiving should be created to coordinate the efforts of CASDA, CIRADA, AusSRC and IAA-CSIC SRC.*

## **Data validation and quality control**

Bi-Qing For presented her data validation framework for WALLABY image cubes, while Vanessa Moss presented a set of data validation metrics for ASKAP visibility data.

- *While QC is currently mostly a visual process, it should in the long term be fully automated.*
- *It may also be desirable to feed back QC results into the scheduler to automatically reschedule observations of data that failed to meet the quality criteria.*
- *QC should be a coordinated effort between all relevant SSPs (including WALLABY, DINGO, GASKAP, FLASH), as the requirements will be similar.*
- *Any joint QC working group should be led by the ASKAP project.*
- *We need to define criteria for where to draw the line w.r.t. data quality, as no observation will ever be perfect.*

## **Friday, 6 March**

### **Data visualisation**

Slava Kitaeff gave an update on the WALLABY data visualisation project with the AusSRC. Dave Pallot gave a demonstration of the parallel SoFiA source finding framework developed as part of the AusSRC support project for WALLABY.

- *Visualisation specialist to be hired by May to work on AusSRC project.*
- *A contact person should be assigned to each visualisation use case submitted to the AusSRC to provide advice.*
- *Missing use cases can still be added at this point in time, and the entire process should be driven by our needs.*
- *To assist in this process, the WALLABY technical working group on visualisation should be reactivated by appointing a chair.*

### **Summary and discussion**

- *Two footprints of the Norma pilot survey field appear to have been observed in addition to the existing NGC 4636 and Hydra observations. Calibration and imaging are still to be done and may take some time.*
- *We are planning to have a new round of internal science proposal for the pilot survey to cover and additional science cases that haven't been addressed yet. A call for proposals will go out soon.*
- *With the Hydra data having been imaged, we should consider having a media release to celebrate this milestone. This needs to be coordinated with all of the stakeholders involved.*
- *We should consider the option of a special issue on pilot survey science.*