

Plans of the PWG of the MKSP*

Aris Noutsos

Ger de Bruyn

Michael Kramer

Masaya Kuniyoshi

Charlotte Sobey

Ben Stappers*

*In collaboration with the TKSP

Task list

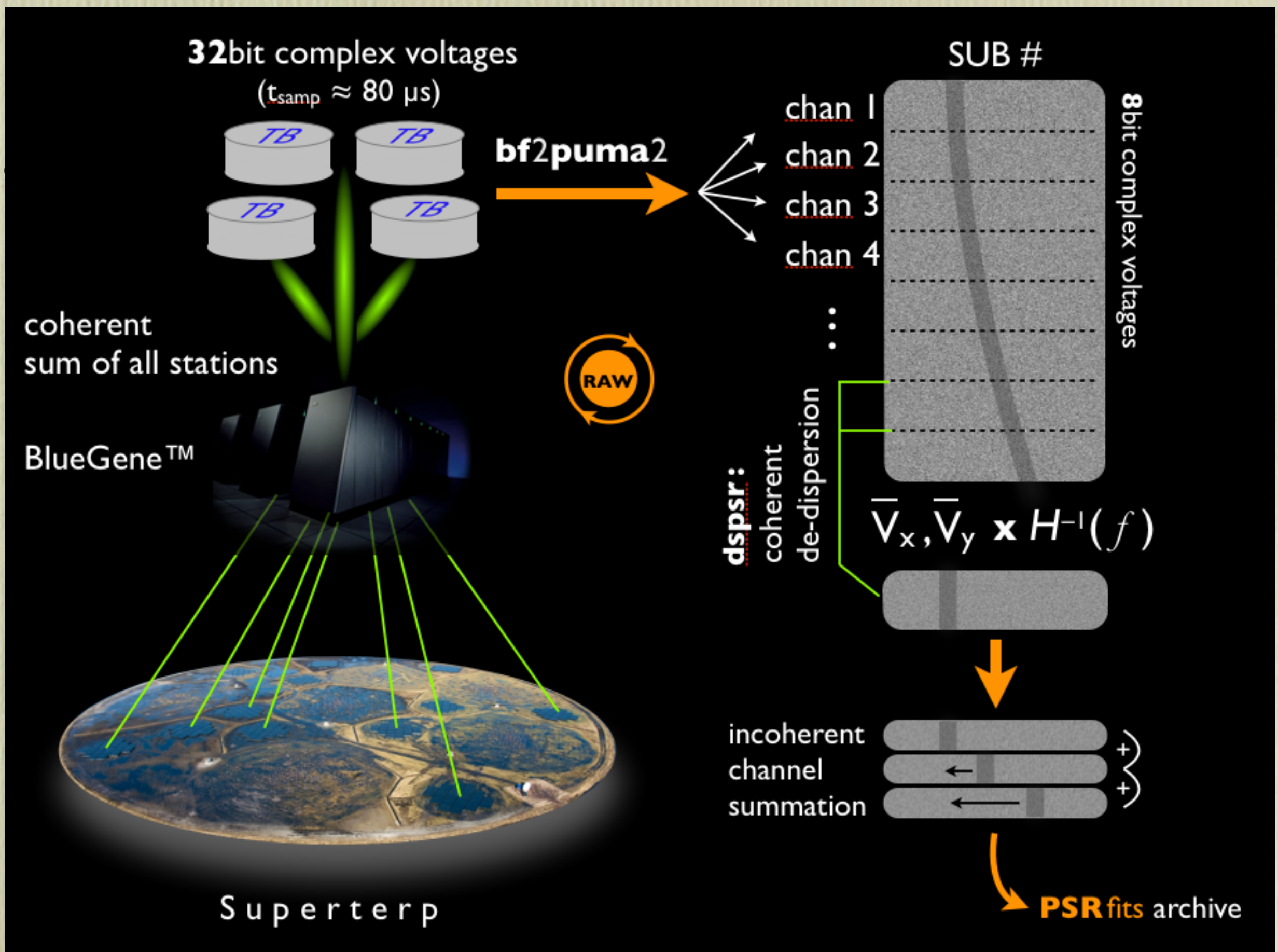
- **Data-reduction pipeline**

Task list

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Raw Voltages

- ▶ ILT pipeline:
 - bf2puma2 (8-bit with DR clipping); *installed on CEPI/II*



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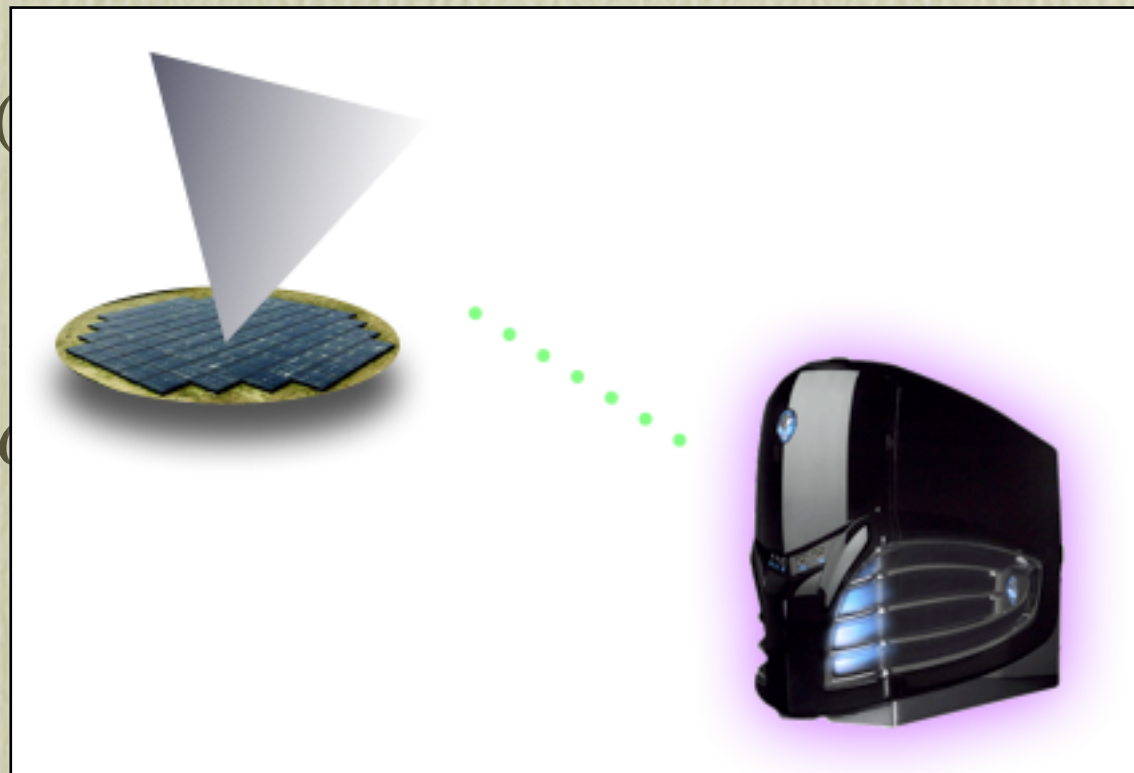
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CEPI/II



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- ▶ Polarisation Calibration
 - E-Jones matrix multiplication; *see Masaya's talk* 
 - New beam model* is essential

*The current one does not transform between station and sky frames!

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- **Data-reduction pipeline**

Stokes Products

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Stokes Products

- ▶ Single-station pipeline:
 - PELICAN framework; *installed on Effelsberg PCs*
 - Stokes IQUV output; *implemented — but in proprietary format*

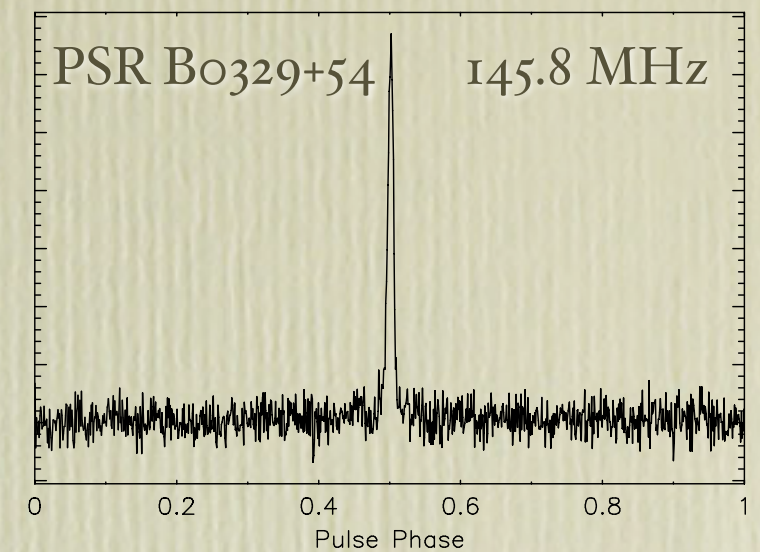
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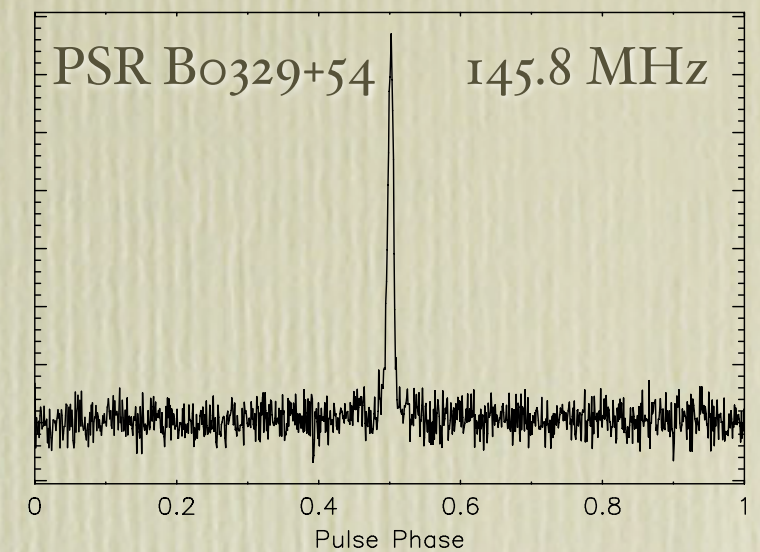
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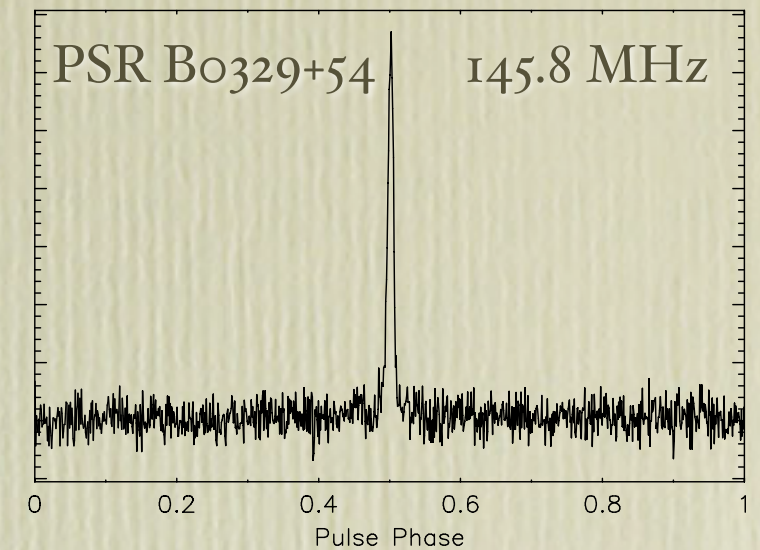


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Raw Voltages

- ▶ Raw-voltage writer implementation (A. Karastergiou)

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- **Ionospheric Calibration**

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- ▶ Catalogue of Polarised Pulsar Calibrators

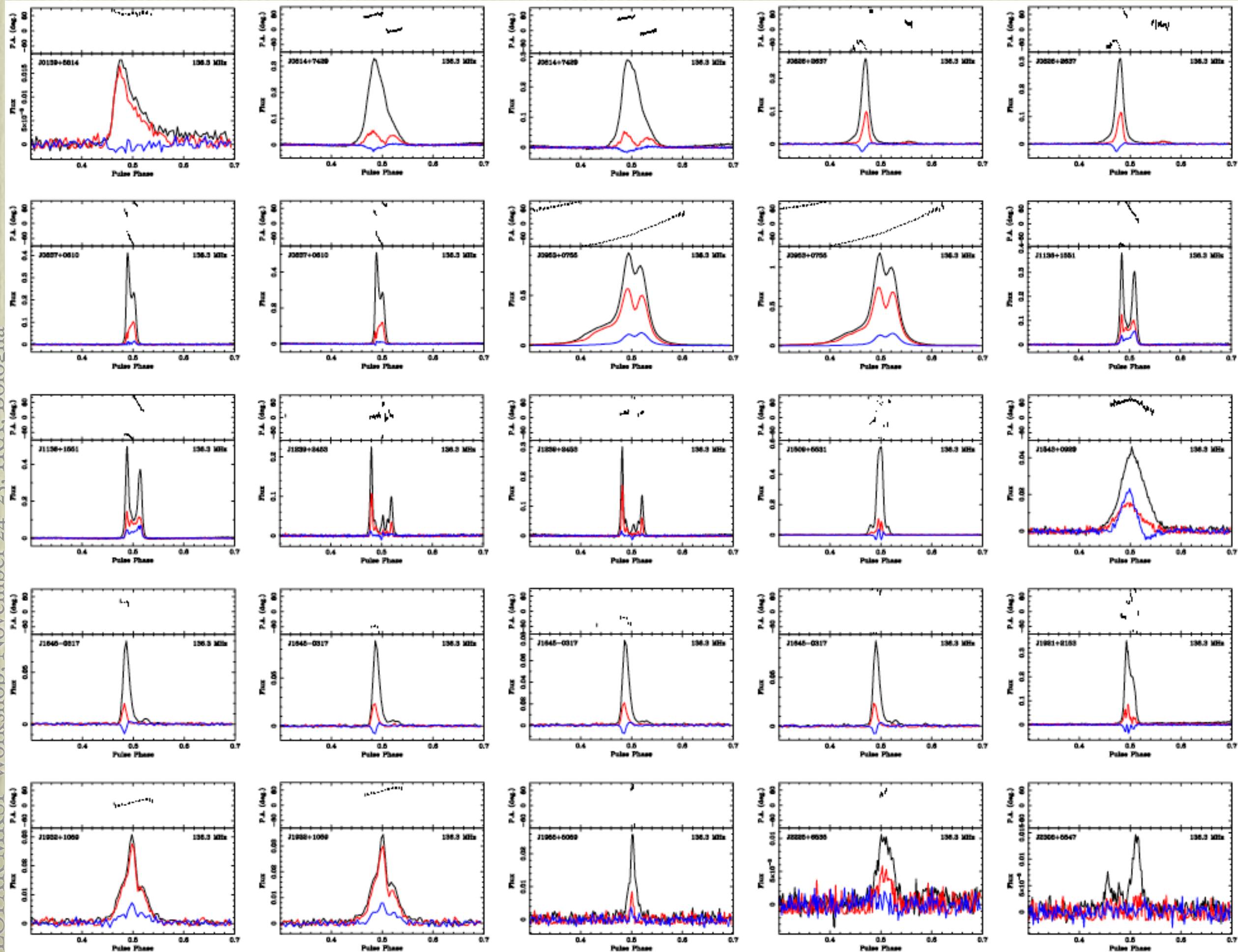
- 15 PSRs from Busy Week 2 (April 2011)

- More should be expected, but

- (a) they will not be as bright

- (b) proof-of-concept with imaging is needed

- (M. Bell, B. Nikiel-Wroczynski)



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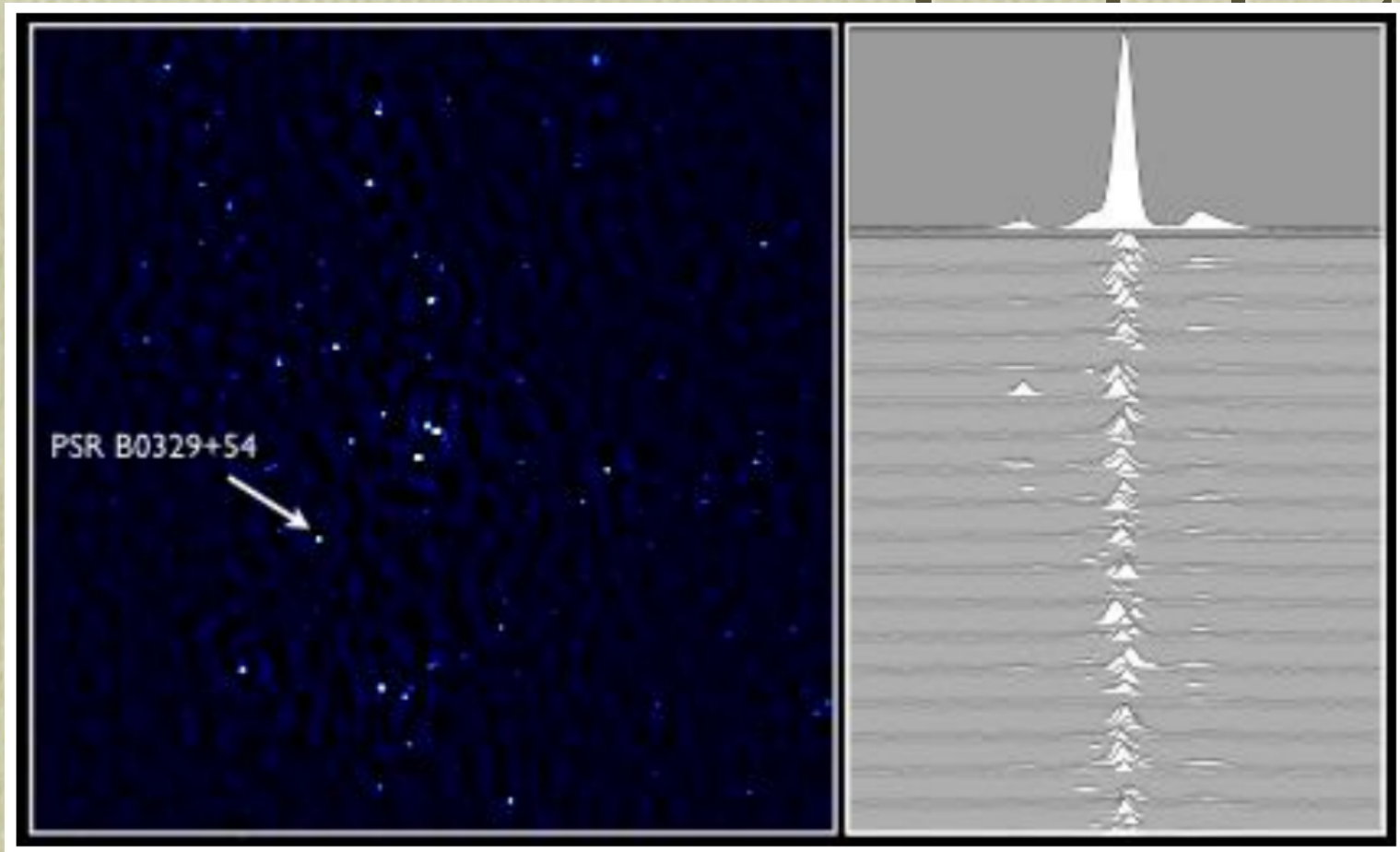
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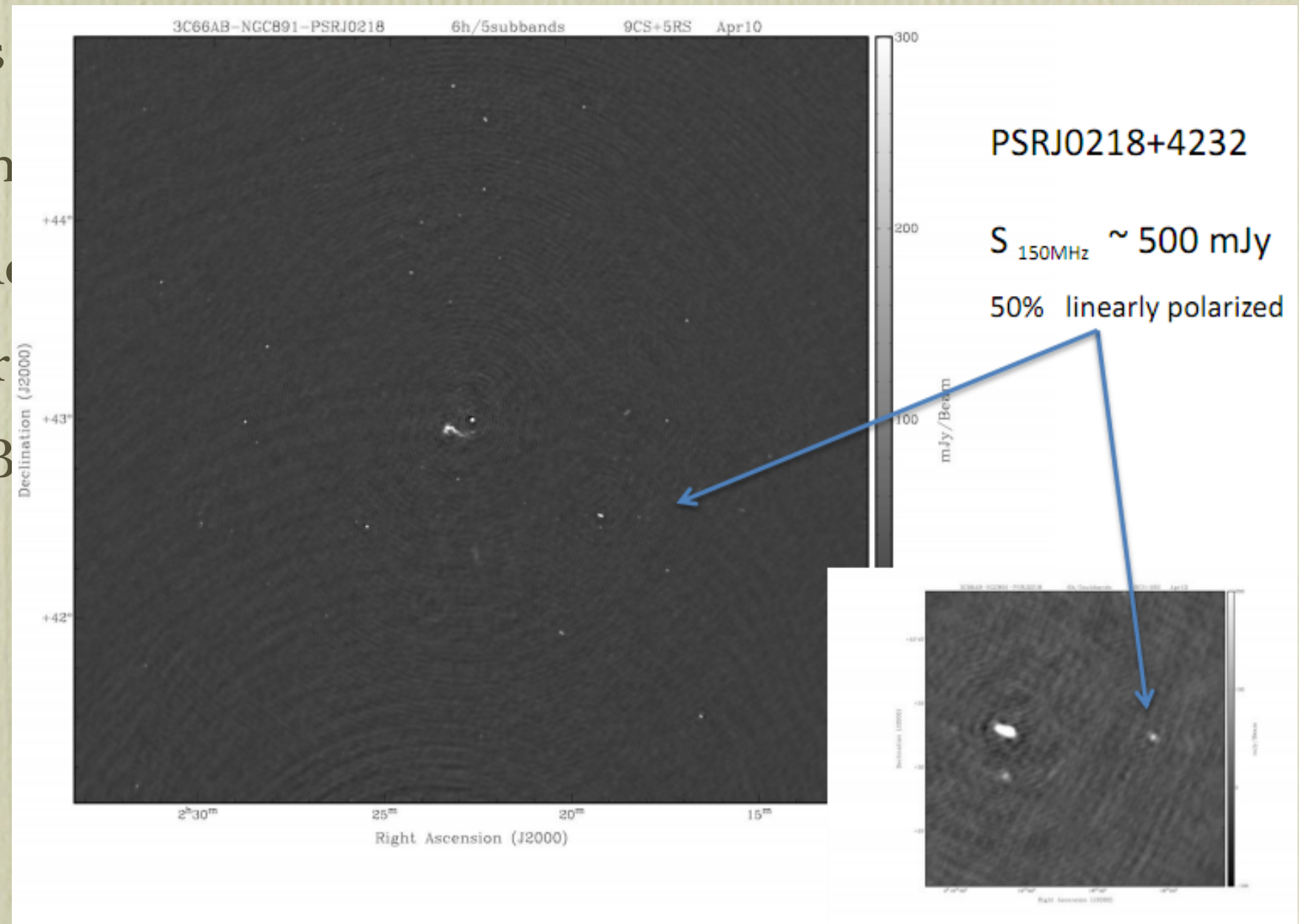
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- ▶ Ionospheric Monitoring / Mapping

- Long-track observations of PSR B0834+06 (2 data sets) and PSR B0823+26 (1 data set*) 
- Simultaneous, multi-beam observations of several pulsars

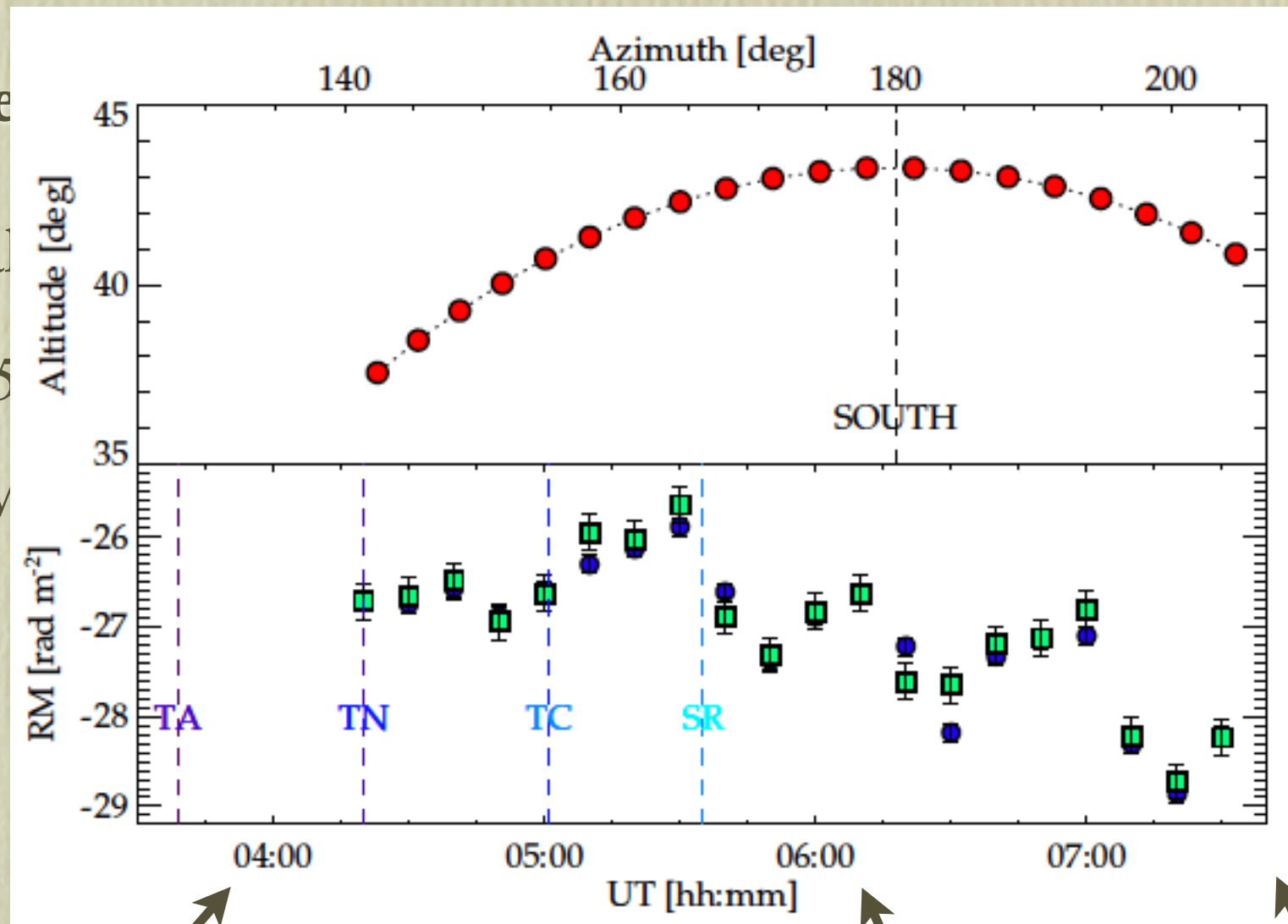
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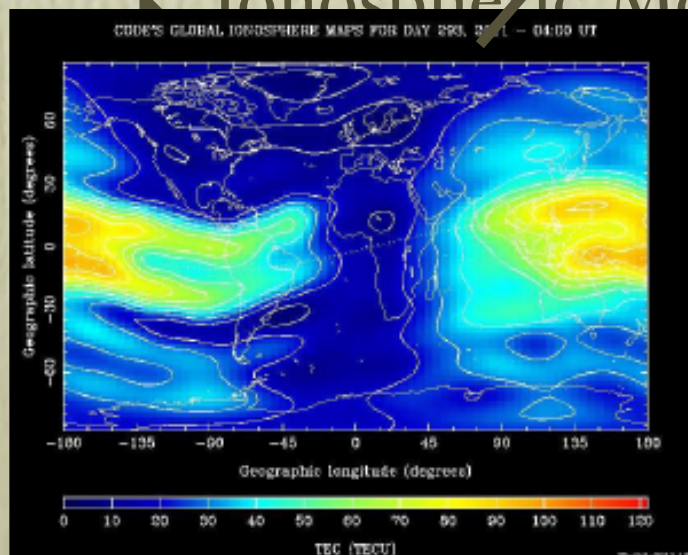
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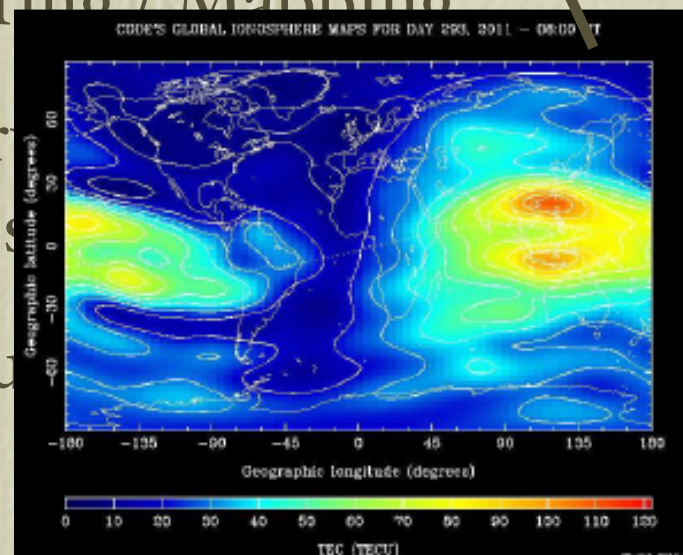
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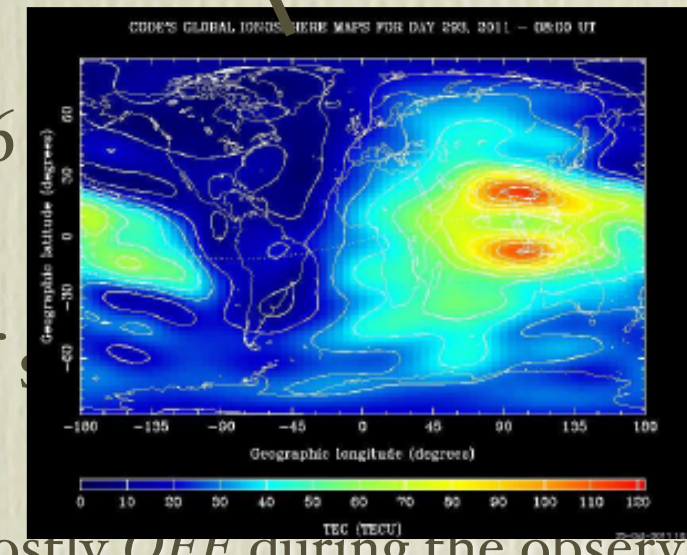
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- ▶ Revision of the Gould & Lyne (1998) catalogue (>230 MHz)

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(Karastergiou 2009; Noutsos et al. 2009)

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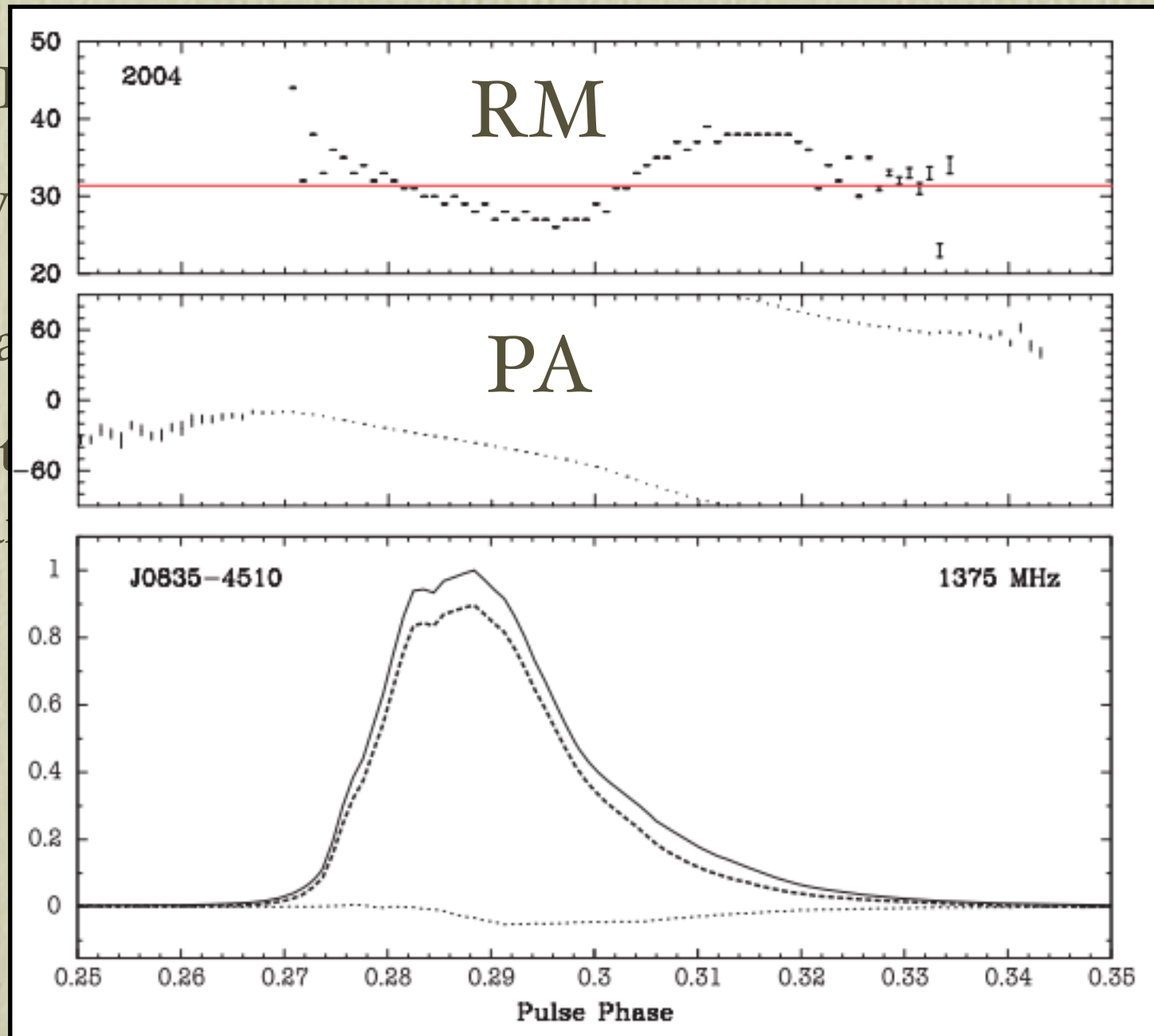
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Noutsos et al. 2009

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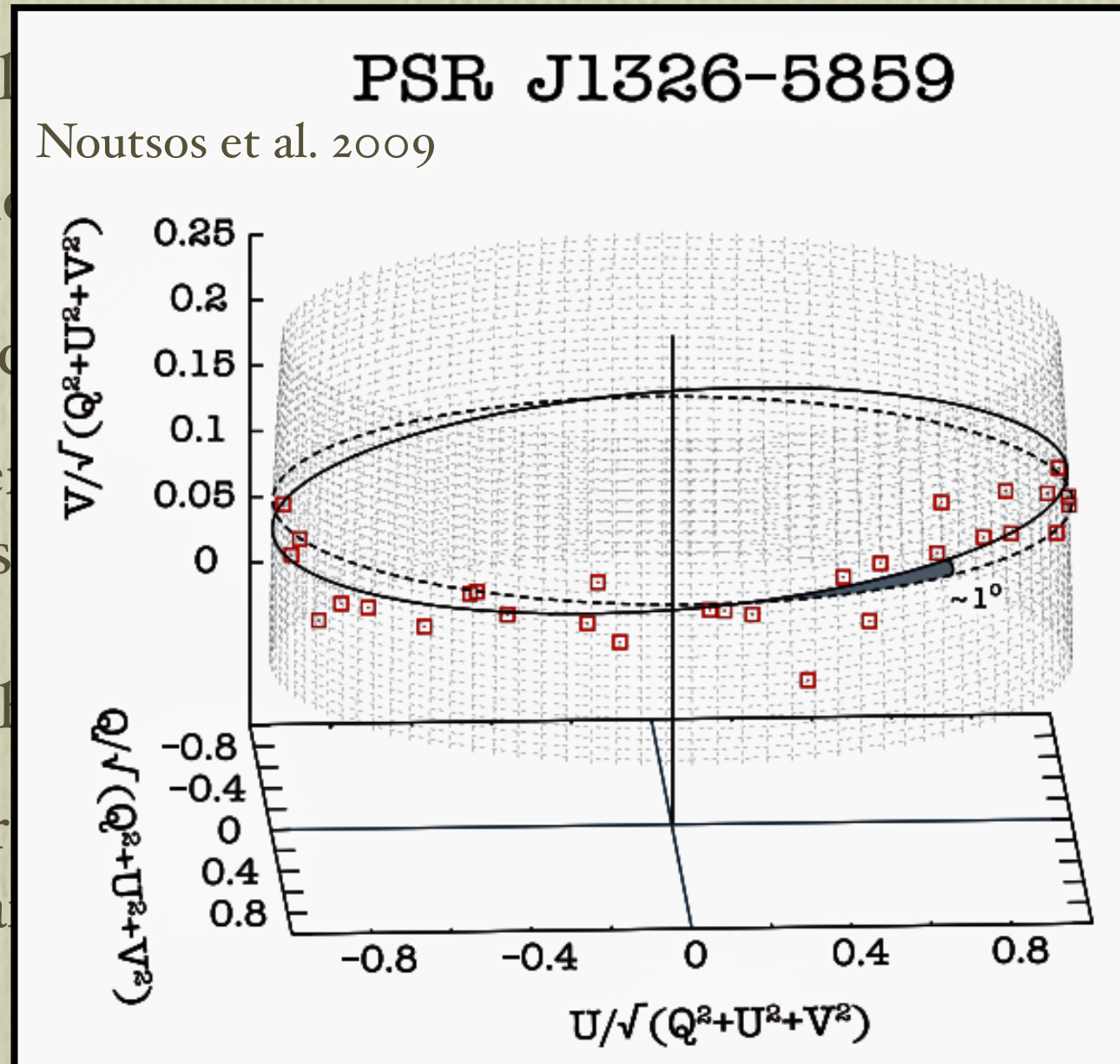
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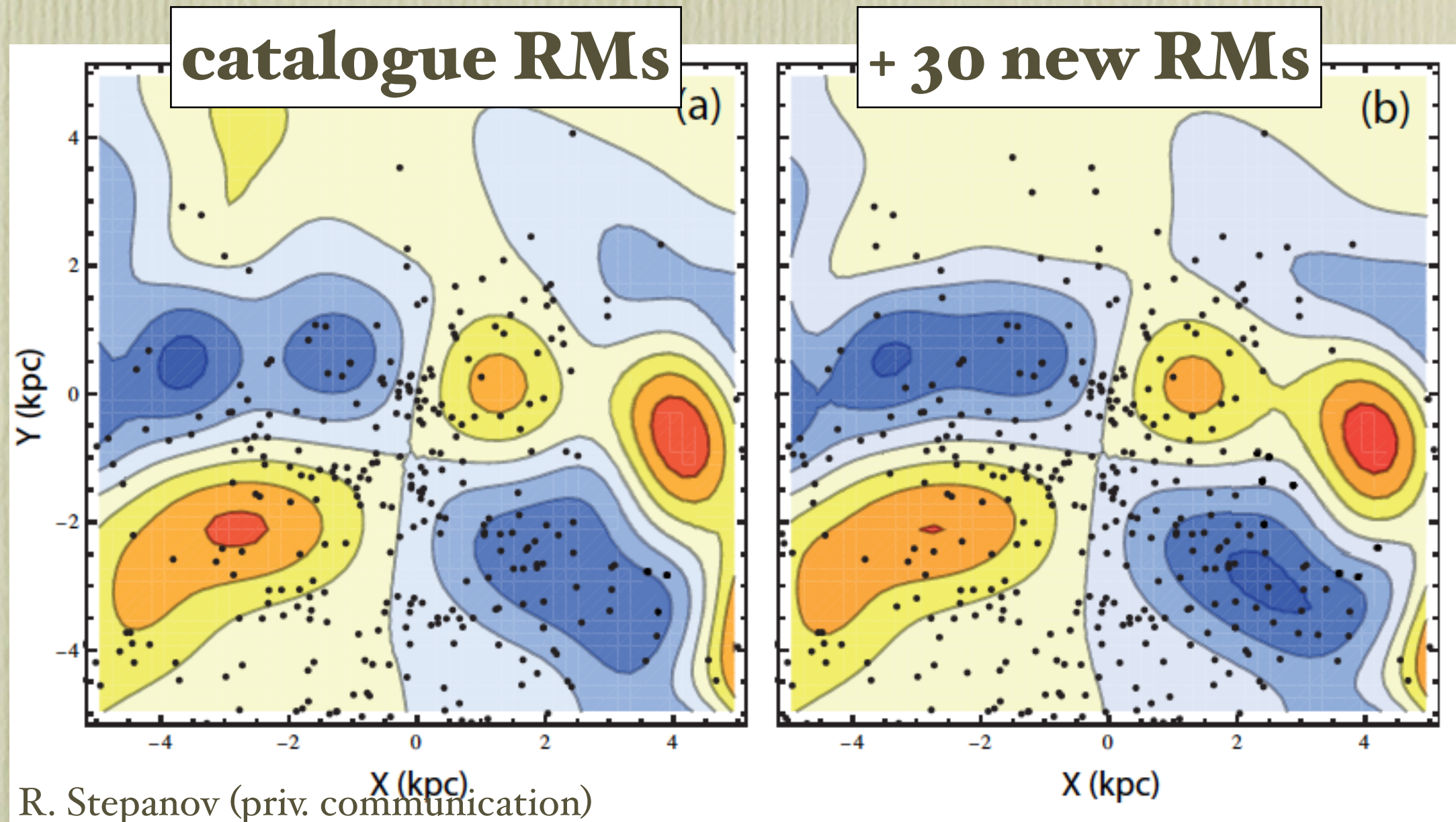
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4. The Structure of the Galactic Magnetic Field
— *C. Sobey & the Polarisation WG*

- ▶ New RMs; Wavelet tomography (e.g. Stepanov et al. 2002)

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R. Stepanov (priv. communication)

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- 5. Ionosphere & ISM Monitoring with Pulsars

- *C. Sobey, J. Anderson (via Jana?) & the Transients KSP*

- ▶ Use of single stations (ILT or Stand-alone mode) to measure pulsar DM & RM variations over long time-scales (months – years)

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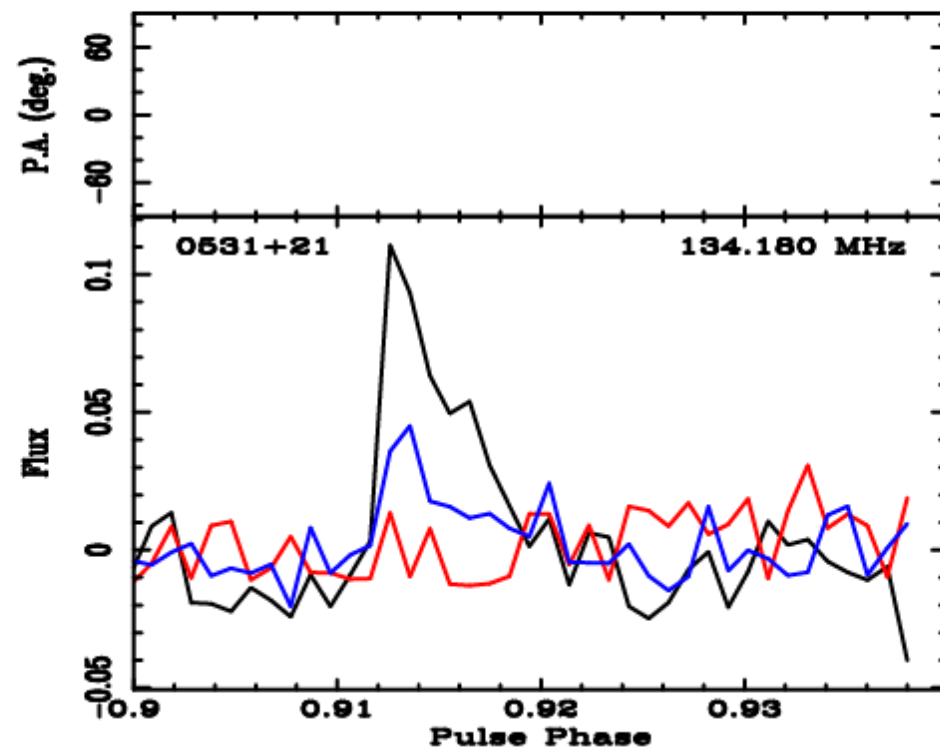
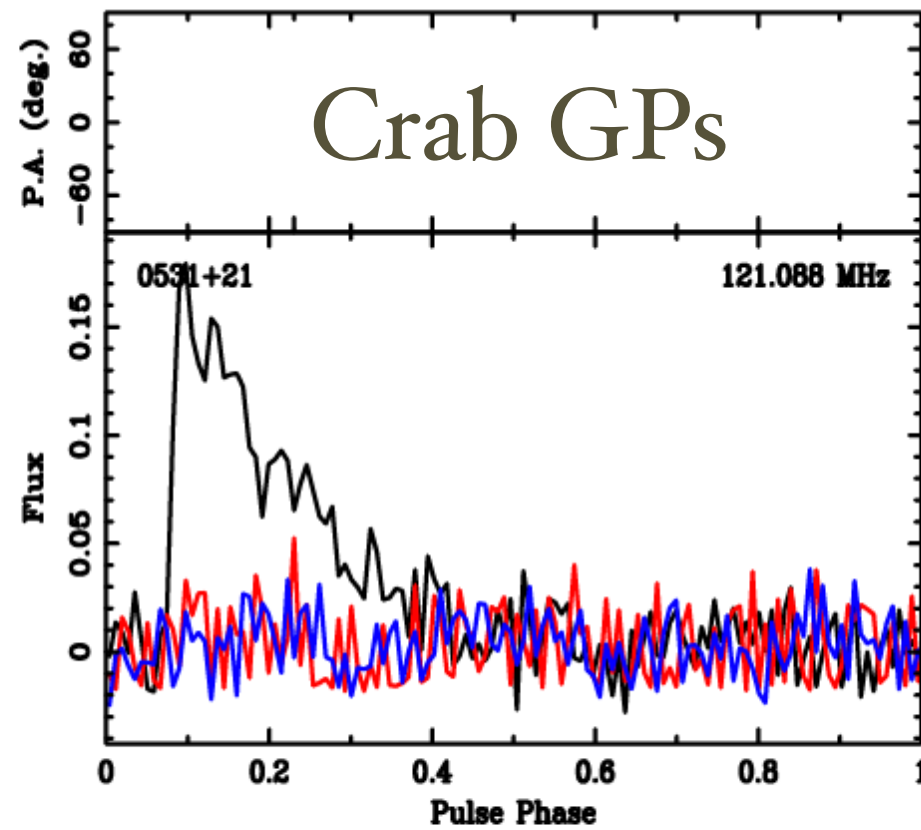
5. Ionosphere

— *C. Sol*

- Use of
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April 2011

November 2011



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- 1. Polarisation Calibration of Pulsar Data with a Beam Model

- *M. Kuniyoshi & the Beam Team WG*

- ▶ Stage 1: Continuation of tests with the Effelsberg single station and the station beam model (i.e. Jones matrix) provided by ASTRON
 - ▶ Stage 2: Help design a calibration pipeline on the BG/P, for TA observations (drawn from our experience gained from Stage 1)

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- 2. Calibration of imaged polarised fields with a nearby pulsar

- *M. Bell & the Survey KSP*

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- 3. Catalogue of Northern Pulsars with a Single Station (Effelsberg)

- *J. Anderson, A. Horneffer, M. Kramer & A. Noutsos*

- ▶ Observation of ~100 PSRs in stand-alone mode with PELICAN

- Goals: determination of (a) the station's sensitivity, (b) its multi-beaming capabilities, (c) its different RCU modes*

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- **Pulsar Busy Week #15**

- (5 – 9 Dec, 2011)

- ▶ Further (e.g. with multiple beams) ionospheric observations
 - ▶ Extend the pulsar-polarisation catalogue
 - ▶ Crab GP data sets
 - ▶ Implementation of bf2lump on the \$LOFARSOF repository