RADIOFOREGROUNDS
The Data Center Platform–DCP-

(presented by J.A. Rubiño-Martin)

RADIOFOREGROUNDS project

http://www.radioforegrounds.eu

H2020-COMPET-2015. Grant agreement **687312:** "Ultimate modelling of Radio Foregrounds" (RADIOFOREGROUNDS).
3-year grant 2016-18 (IAC; IFCA; Cambridge; Manchester; SISSA; Grenoble; TREELOGIC).

This project will provide specific products:

a) state-of-the-art legacy maps of the synchrotron and the anomalous microwave emission (AME) in the Northern sky;
b) a detailed characterization of the synchrotron spectral index, and the implications for cosmic-rays electron physics;
c) a model of the large-scale properties of the Galactic magnetic field;
d) a detailed characterization of the AME, including its contribution in polarization; and
e) a complete and statistically significant multi-frequency catalogue of radio sources in both temperature and polarization.
f) specific (open source) software tools for data processing, data visualization and public information.

Database

All maps at common resolution of 1 deg.

- MAPS (QUIJOTE, PLANCK, WMAP,… smoothed to 1deg)
- MODELS. Parametric → predictions at user's specified frequencies.
- CATALOGUES (point sources)

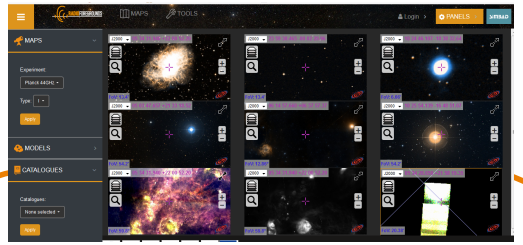
What is the RADIOFOREGROUNDS Data Center Platform–DCP-?

Targeted Users

- Researchers
- Scientists
- Astronomers
- Astrophysicists
- Physicists
- Universities & Research Centres (Research & applied research)
- Organisations interested in analysing the polarized emissions from the microwave domain

RADIO FOREGROUNDS

Platform

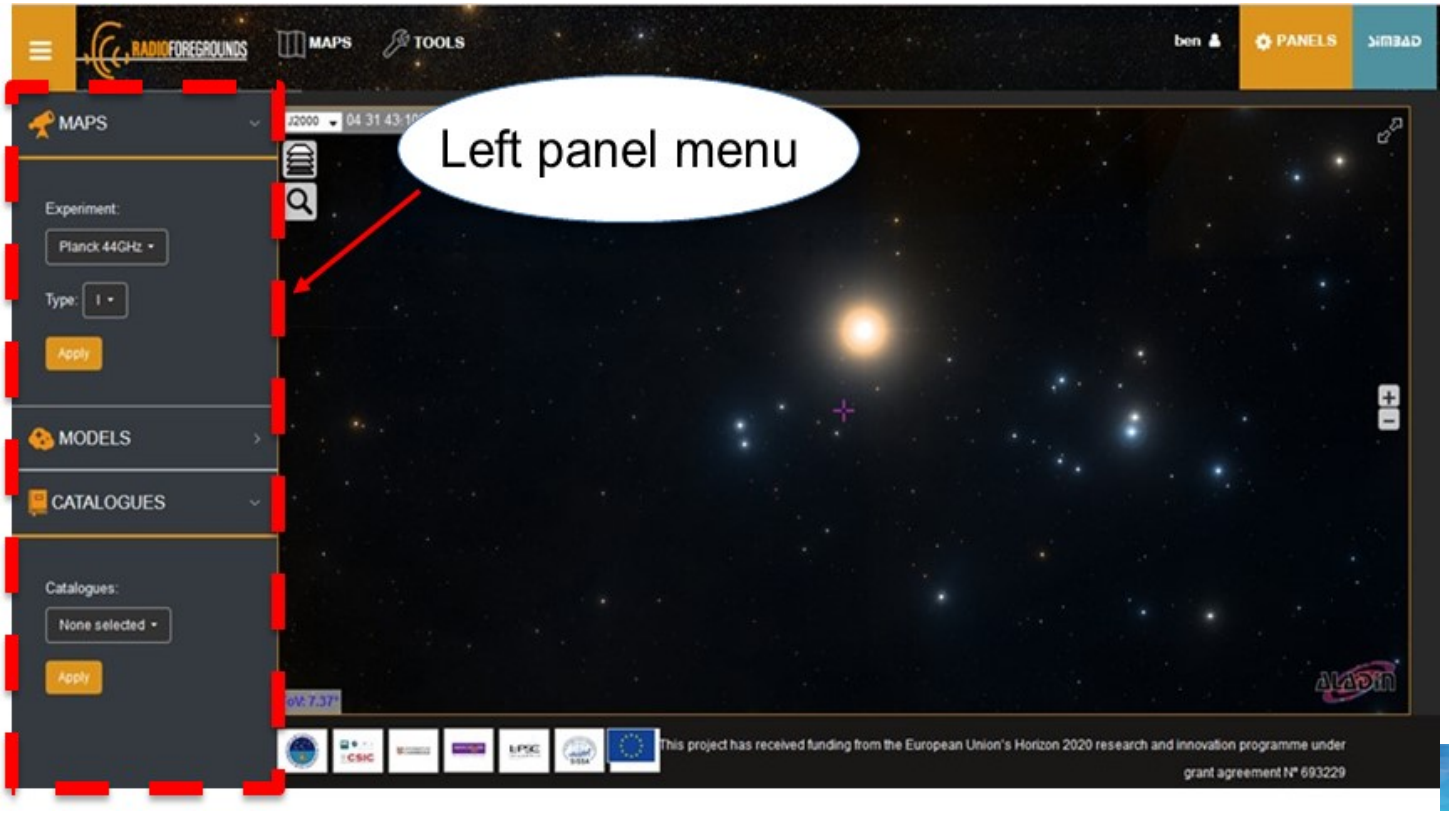


- RADIOFOREGROUNDS maps (QUIJOTE)
- Visualize maps
- Models
- Creation of new images
- Prediction, simulation & Analysis

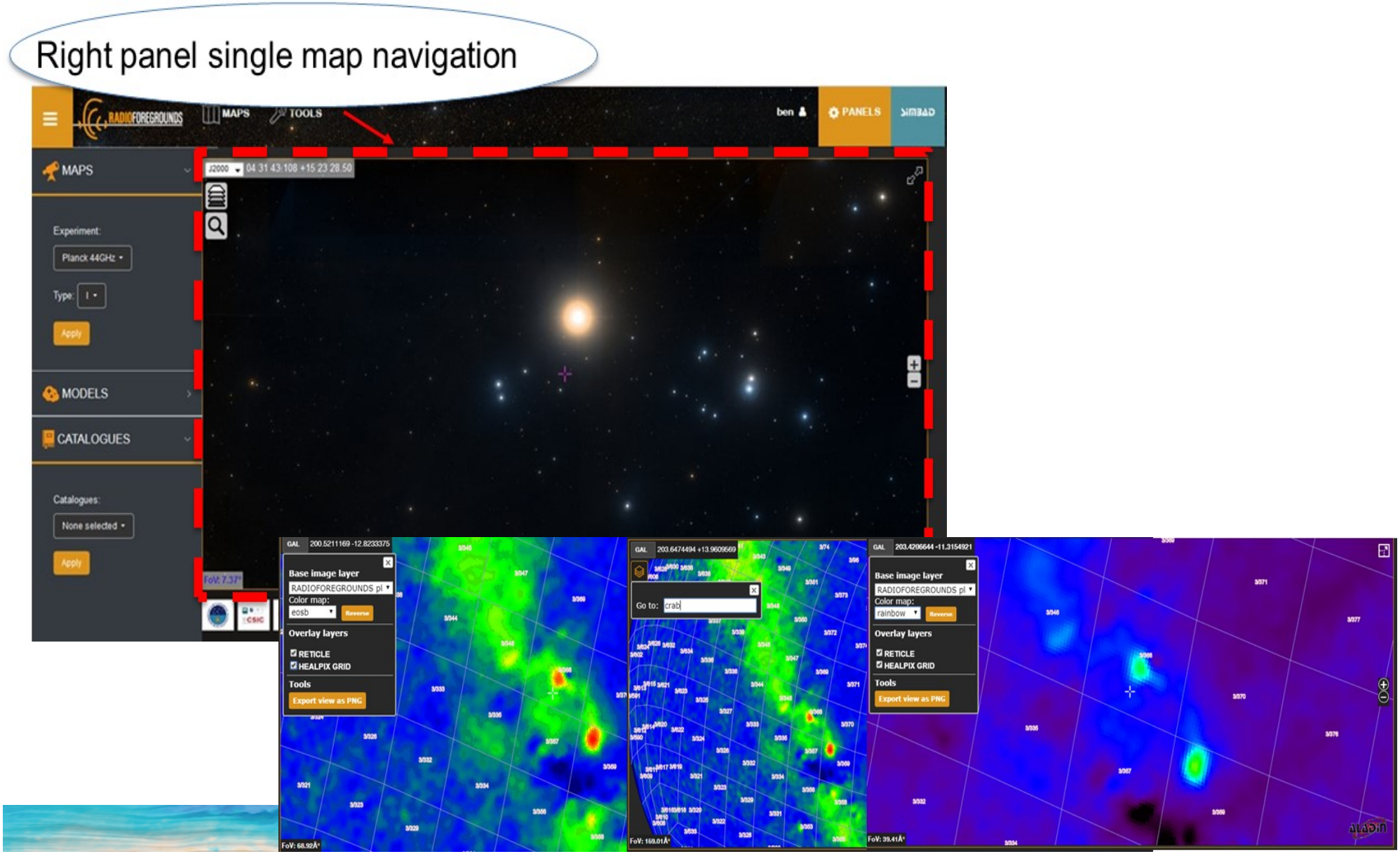
  Process and research on parameters for CMB datasets

What can you do with the RADIOFOREGROUNDS platform?

- Visualize maps created and provided by RADIOFOREGROUNDS
- Analyse and visualize maps (up to 9 maps at the same time)
- Create your own maps from análisis and save the maps in your personal área (registered users)
- Re-analyse and work in your own maps



What can you do with the RADIOFOREGROUNDS platform?

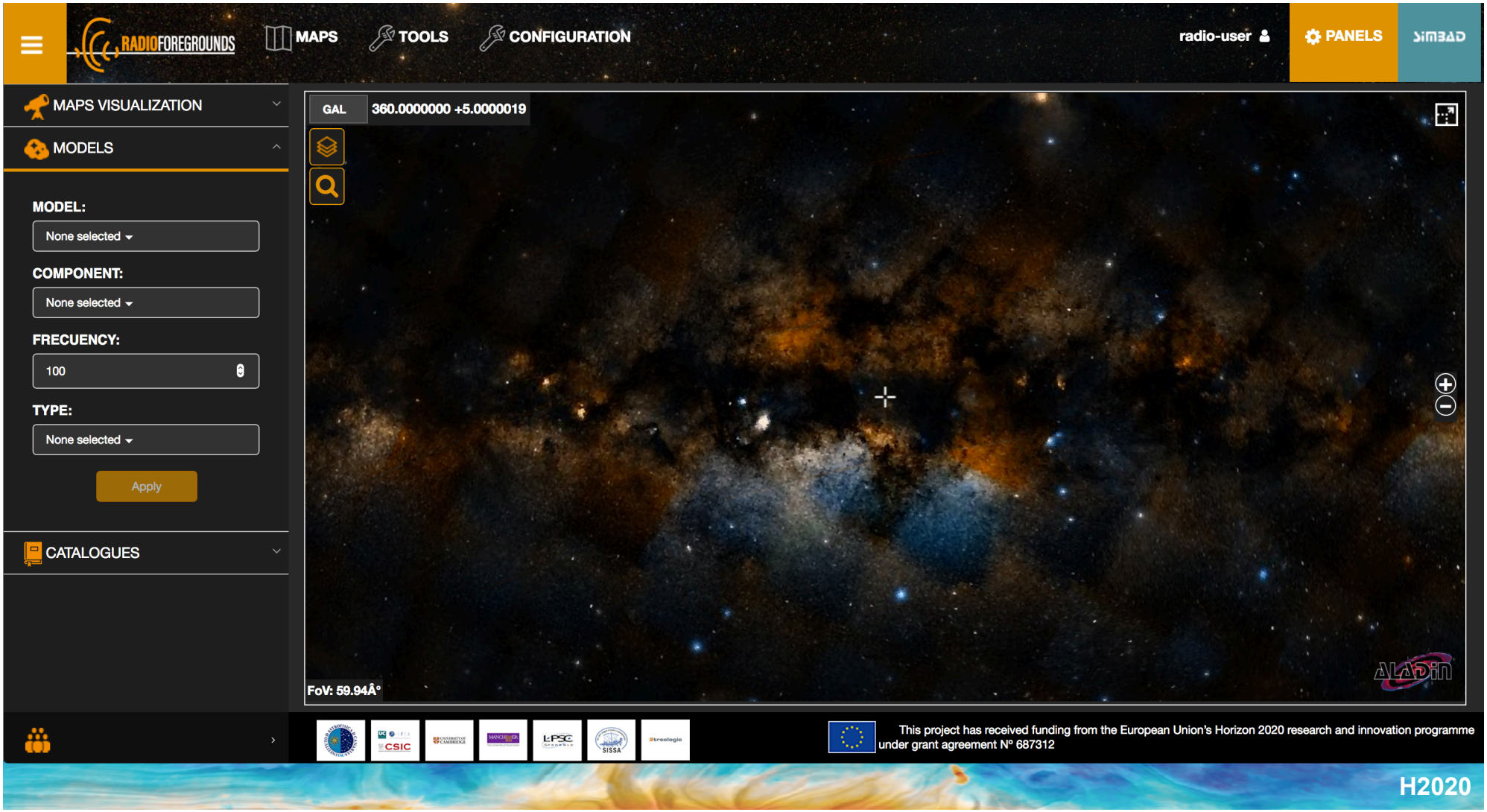


What can you do with the RADIOFOREGROUNDS platform?

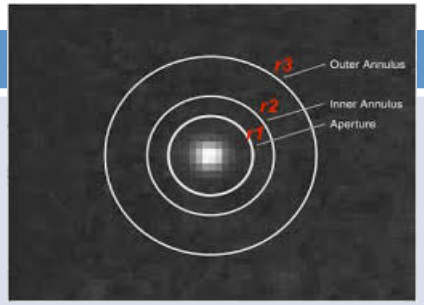
Multipannel (independent or synchronized) Navigation

What can you do with the RADIOFOREGROUNDS platform?

Models: all parametric foreground models (synchrotron, dust, AME, free-free) studied in the project.

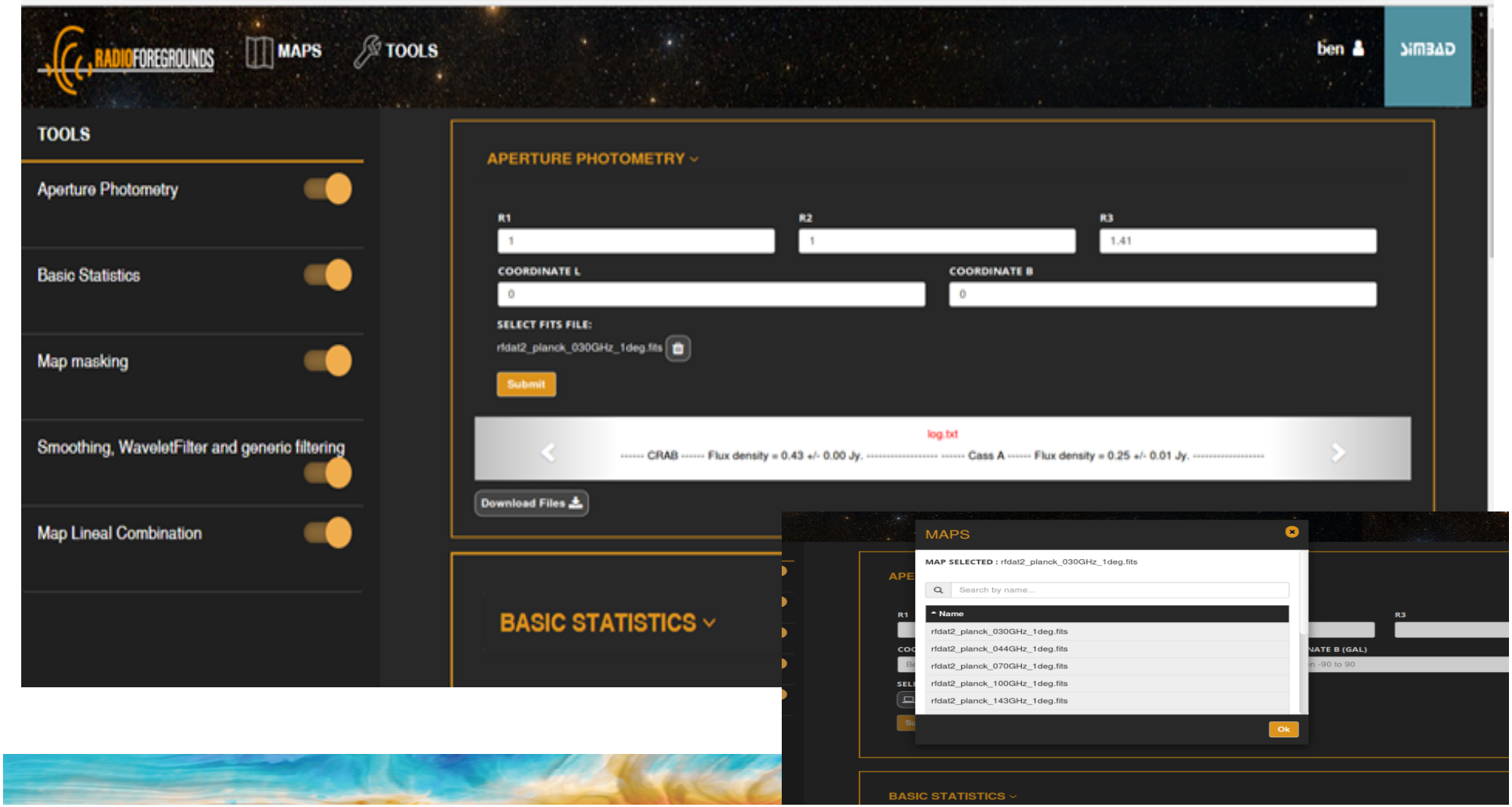


RADIOFOREGROUNDS TOOLS

TOOL	DESCRIPTION
ApperturePhotometry (CRAB)	Computes the flux around a given position, using the aperture photometry method. 
Smoothing, WaveletFilter and generic filtering (window filter)	Convolves any map in the database with a Gaussian beam specified by the user (by default=, or with a Mexican Hat Wavelet (MHW), or with any generic filter provided by the user
BasicStatistics (image statistics)	Computes and returns the basic statistics (mean, standard deviation, skewness, kurtosis) for a given patch of a map, defined by the user.
Map Masking (image masking)	Masks an input map, either by appending information on the pixels to be masked or by multiplying the input map by a numerical factor (1 or 0 for non-apodized masks, real numbers in the[0,1] interval for apodized masks
Lineal Combination of models	Multiple linear combinations of two HEALPIX maps, with different models of astrophysical components. The default is the sum of the two maps. The input: Maps to be combined and the coefficient for each map. The output: Combined map

What can you do with the RADIOFOREGROUNDS platform?

Multiparameter analysis over CMB datasets, using our tools



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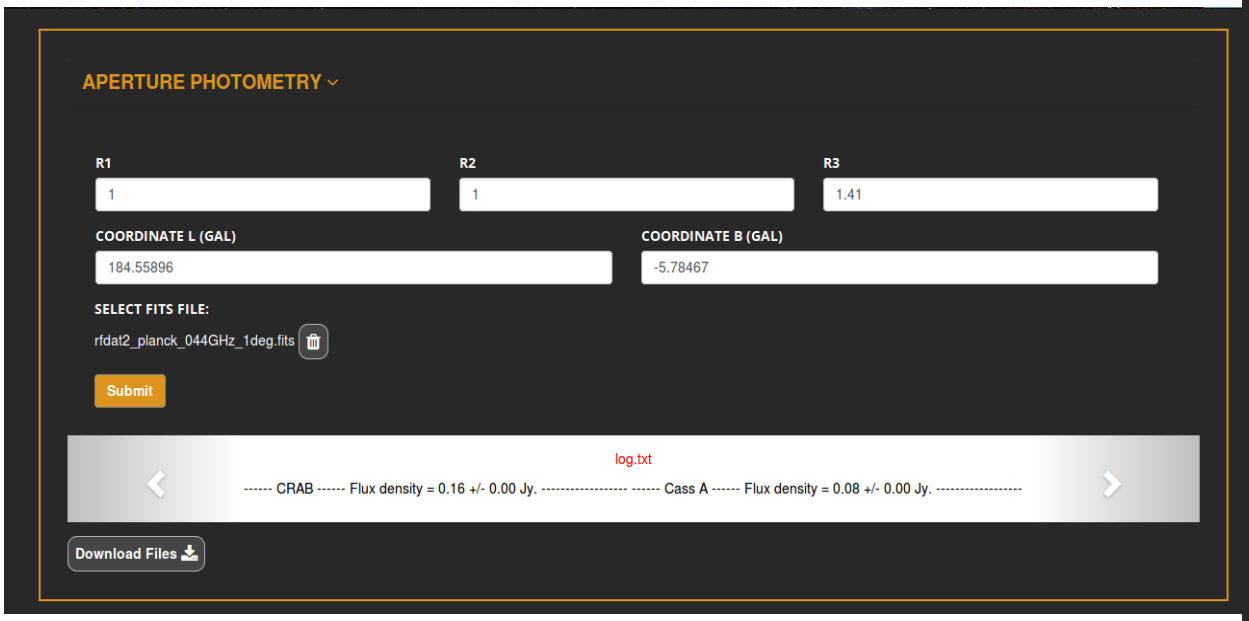

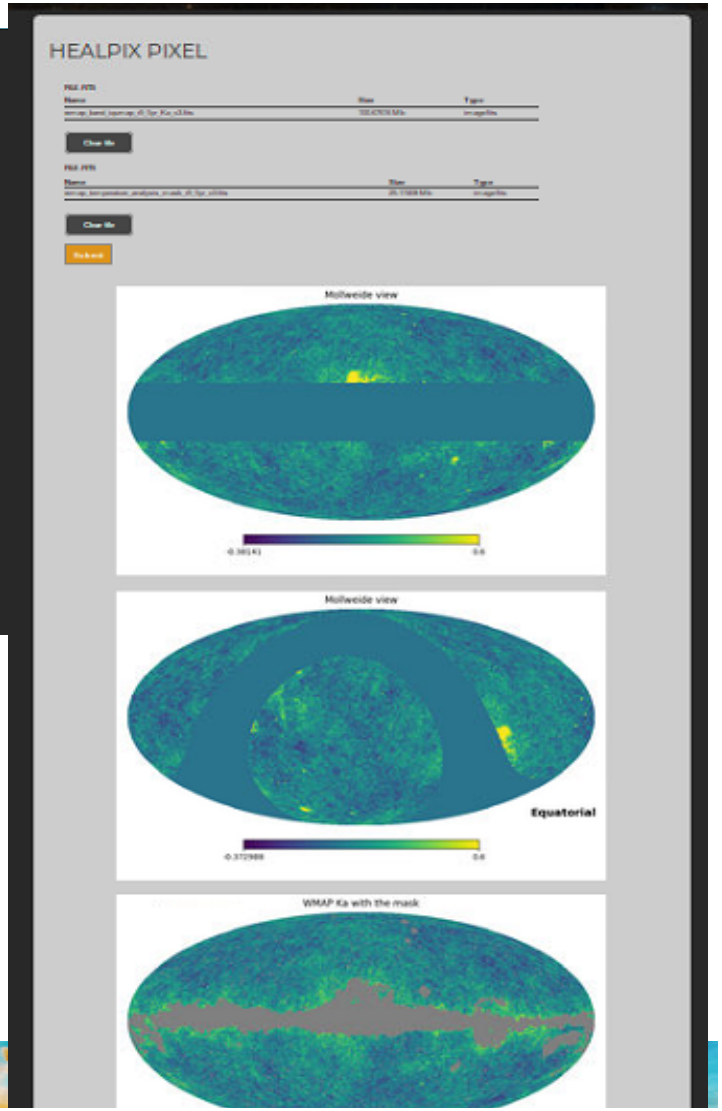

* Tool to be publicly released by the end of the year.

* Will contain 1-deg smoothed maps for QUIJOTE and others experiments. Catalogues of radiosources.

* Linked to the main web page of the project: www.radioforegrounds.eu

THANK YOU!