

# SMART Pulsar Web Classifier

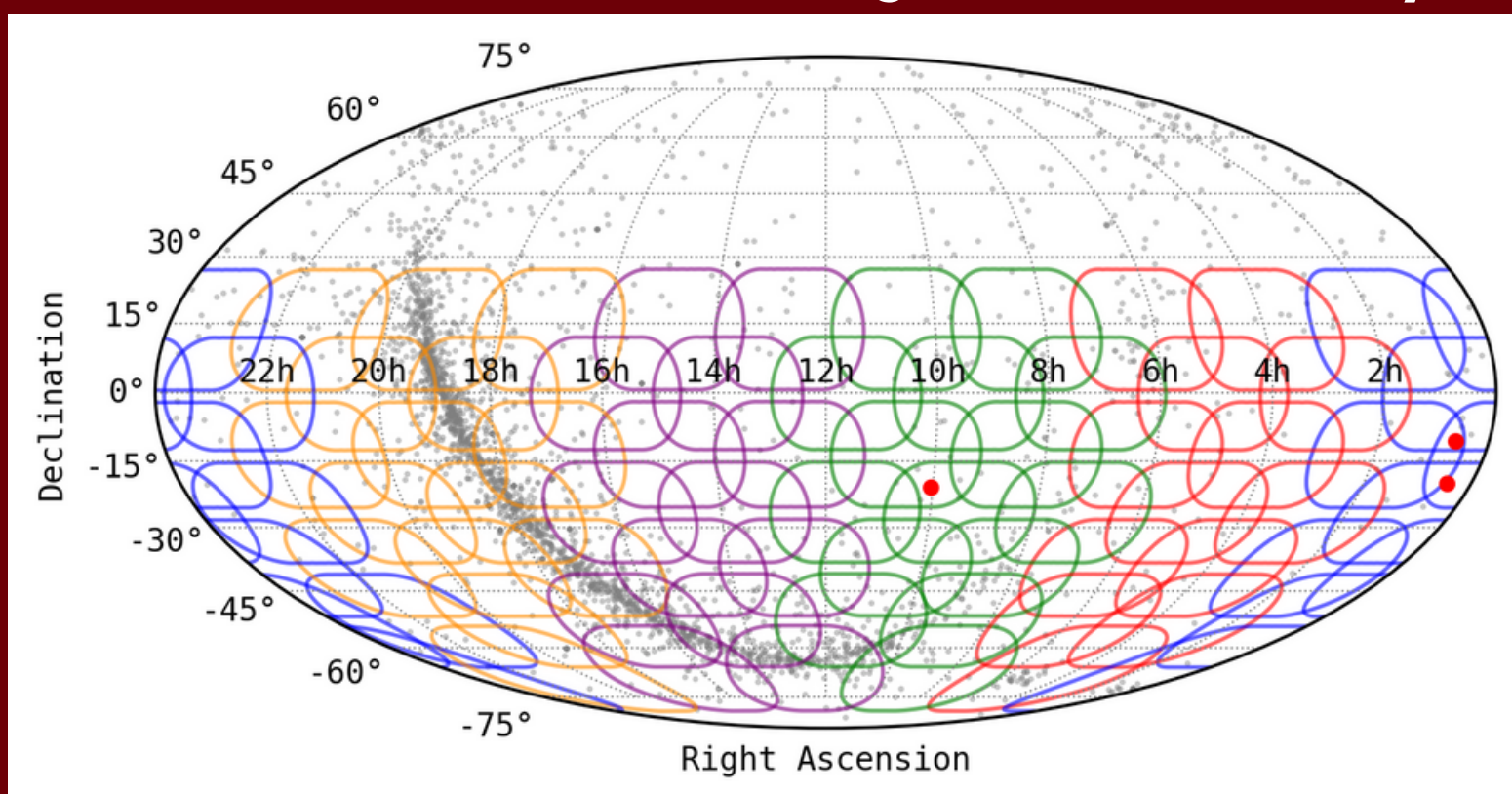
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## The Project

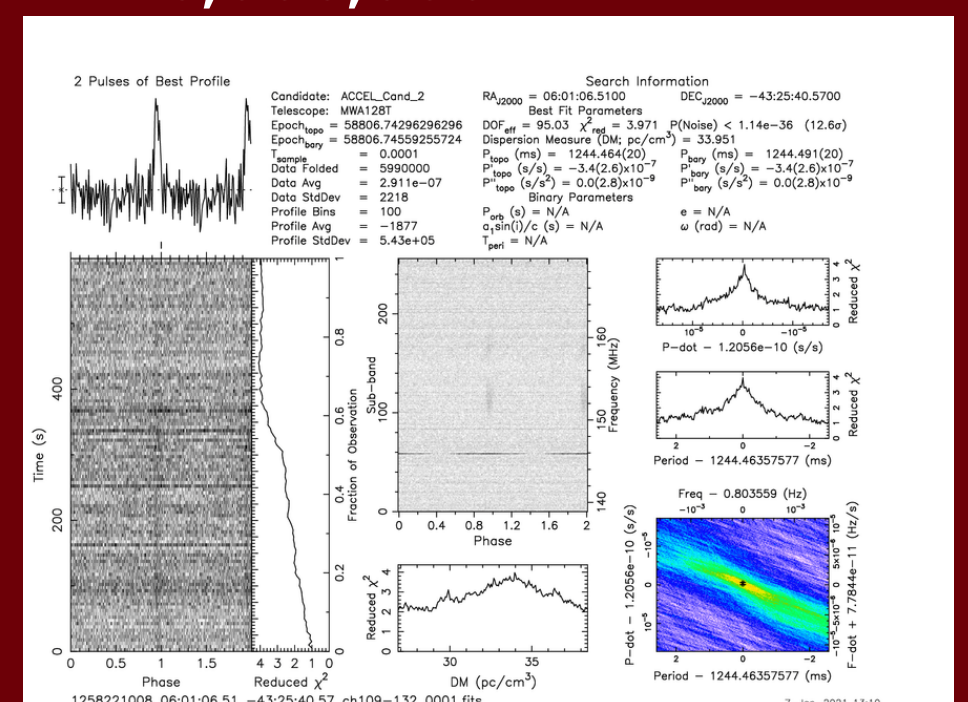
ADACS developed a web app to make it easier for researchers to distribute the task of classifying of tens of thousands of pulsar candidates. The website serves up candidate pulsars and allows users to inspect, classify, and rank them.

## The Problem

The Southern-sky MWA Rapid Two-metre (SMART) pulsar survey exploits the Murchison Widefield Array's enormous field of view to survey the sky south of 30° in declination for pulsars and at low frequencies (140-170 MHz). The survey is undertaken a series of 70 observations divided into five semesters (see below left) and will acruce three petabytes that will require ~100 million CPU core hours to process. This will produce millions of candidates, which can be reduced by 90% by machine learning algorithms. This still leaves hundreds of thousands of candidates that need to be human classified, which would make the data management extremely difficult.



x 10,000,000 candidates



## The Solution

ADACS and Data Central developed a database and web front end (hosted on Data Central) to store these numerous pulsar candidates. Prioritisation algorithms are used to serve users the most likely candidates first (see right). Researchers can classify the candidates, submit ranking and notes and compare with known pulsars. The candidates with the highest average ranking can then be followed up. This web app has already led to two new pulsar discoveries, e.g. [McSweeney et al. \(2022, ApJ accepted\)](#).

