

Overview of the Wavelength Calibration Code for 2dfdr

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1 Introduction

This document focuses on the code specified for the wavelength calibration and the reasoning behind them.

The traditional approach to wavelength calibration has been:

- 1) Take a central fibre signal
- 2) ...
- 3) ...

This approach shows success in a majority of cases, but will occasionally fail.

The steps for the new wavelength calibration code is as follows:

- 1) Select the signal of a central fibre as a reference
- 1) Find a list of lines in the signals of each fibre
- 2) Via the Whale Shark algorithm, match the 10 strongest lines from each signal to the reference list
- 3) Assuming enough matches were made for each signal, find a robust quadratic map of the reference signal to the other signals
- 4) Scrunch the signals via the quadratic mappings
- 5) Match the line lists in each scrunched signal via the multi target tracking algorithm
- 6) Create a master line list that consists of all unique lines found
- 7) Using given estimates the central fibre wavelength range in armstrongs scrunch the master line list into an estimated armstrong atlas.
- 8) Match the estimated atlas to a given one via whale shark matching.
- 9) Identify the precise wavelength value for each line in each fibre
- 10) Define a mapping of the lines in pixels to precise wavelength values

We review each in turn

2 Identify line lists in a single fibre

Note, still working on this

3 Issues to consider

[Watch this space]