
Fabber ASL documentation

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These models use the [Fabber](#) Bayesian model fitting framework¹ to implement a number of models for Arterial Spin Labelling MRI (ASL-MRI).

Note: If you have ASL data that you are looking to process you should start with the [BASIL](#) toolset or the [OXASL](#) both of which use `FABBER_AS_L` internally.

¹ Chappell, M.A., Groves, A.R., Woolrich, M.W., “Variational Bayesian inference for a non-linear forward model”, *IEEE Trans. Sig. Proc.*, 2009, 57(1), 223–236.

CHAPTER 1

Getting FABBER_ASL

The ASL models are included in [FSL](#). We strongly recommend version 6.0.1 or later.

If you need an updated version of the model which has not yet been released to FSL, you will either need to [build from source](#) using an existing FSL 6.0.1 or later installation, or download the pre-built [Fabber bundle](#) which contains the latest ASL release alongside other models in a standalone package.

2.1 The resting state ASL model

This is the most common ASL model. In its simplest form it implements the well-known Buxton model, however it can incorporate additional features such as an arterial component, exchange and dispersion models and partial volume correction. It is the main model used in the [OXASL](#) and [BASIL](#) pipelines.

This model is selected using `--model=aslrest`.

2.2 The multiphase model

This model is designed for processing multiphase ASL data. It performs the equivalent of label-control subtraction, resulting in a data set which is suitable for processing using the `aslrest` model. It is used by the multiphase plugin for the [OXASL](#) pipeline.

This model is selected using `--model=asl_multiphase`.

2.3 The QUASAR model

This model is intended for processing data from the QUASAR ASL sequence.

This model is selected using `--model=quasar`.

2.4 The Turbo-QUASAR model

This model is intended for processing data from the Turbo-QUASAR ASL sequence.

This model is selected using `--model=turboquasar`.

2.5 The Velocity-selective model

This model is intended for processing data from the Velocity Selective ASL sequence.

This model is selected using `--model=velocity_selective`.

2.6 The Saturation-Recovery model

This model is designed for the saturation recovery curve calibration method.

This model is selected using `--model=satrecov`.

2.7 The multi-TE model

This model is for ASL data captured at a series of different TE values. It is used by the multi-TE plugin for the [OXASL](#) pipeline.

This model is selected using `--model=asl_multite`.

2.8 The Buxton model

This model implements only the basic Buxton kinetic model. It has been superceded by the more generic `aslrest` model and is kept only for historical compatibility.

2.9 The 2-compartment model

This model has been superceded by the exchange options in the `aslrest` model.

CHAPTER 3

Examples

CHAPTER 4

References
