MRC | Cognition and Brain Sciences Unit

aa 4.3: new features

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Automatic analysis (aa) 4.3

- **Robustness**
  - Running
  - Summaries
- **Convenience**
  - Setting up
  - Running
  - Results
- **New features**
  - General
  - fMRI
  - MEG

https://github.com/rhodricusack/automaticanalysis/blob/v4-devel/CHANGELOG.md

Robustness

- **Running**
  - Compatibility with MATLAB pre-r2012b (*localsingle* only)[1]
  - Iterative file retrieval to overcome network issues (*aap.options.maximumretry* = *5*)
  - aaworker folders
    - prevent creation of the useless aaworker0 folder
    - created in **<HOME>/.aa** (hidden) folder
    - cleaned up regularly after certain days (*aap.options.aaworkercleanup* = *7*)
- **Summaries**
  - Default message for "Motion correction summary“ in case of a single subject
  - Renaming "First level contrasts" to "First level thresholded maps"

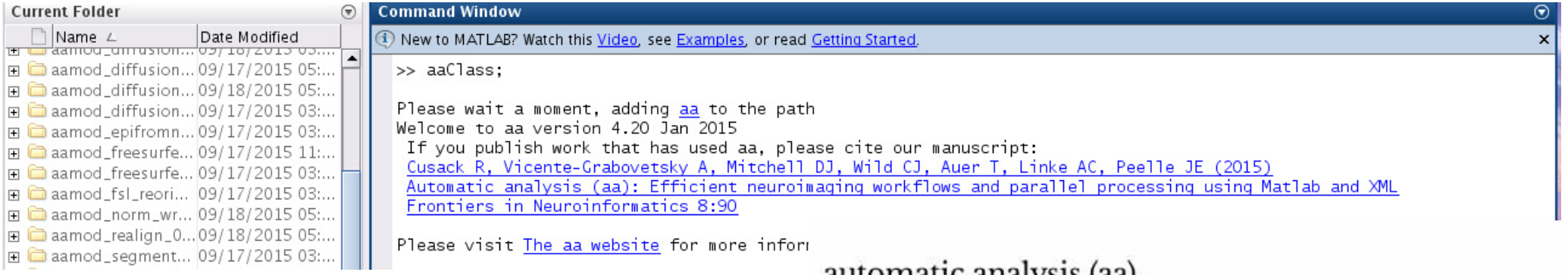
Convenience

- **Setting up**
  - Allow specification of subjects in the whole UMS in the same way
    - *aas_addsubject*
    - *aas_addevent*
    - *aas_addcovariate*
    - *aas_addcontrast*

  - *aap.options.checktasksettingconsistency* (experimental):
    - Check whether settings have changed since the last execution
    - Trigger re-execution of the task accordingly regardless of the doneflag

Convenience

- **Running**
  - aa Intro



TECHNOLOGY REPORT ARTICLE

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Automatic analysis (aa): efficient neuroimaging workflows and parallel processing using Matlab and XML

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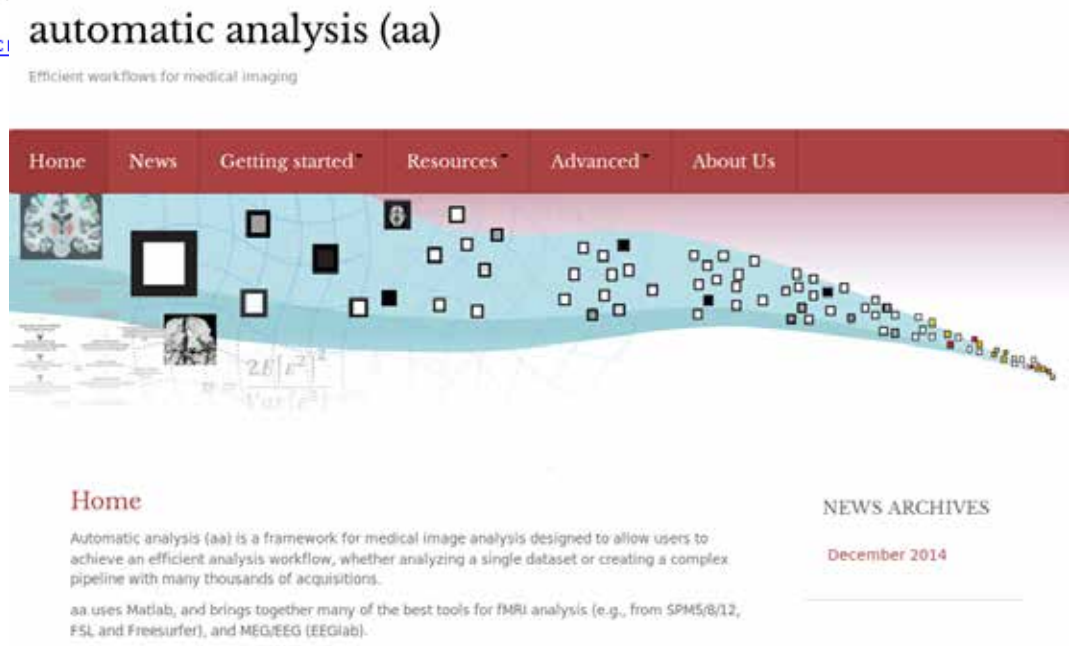
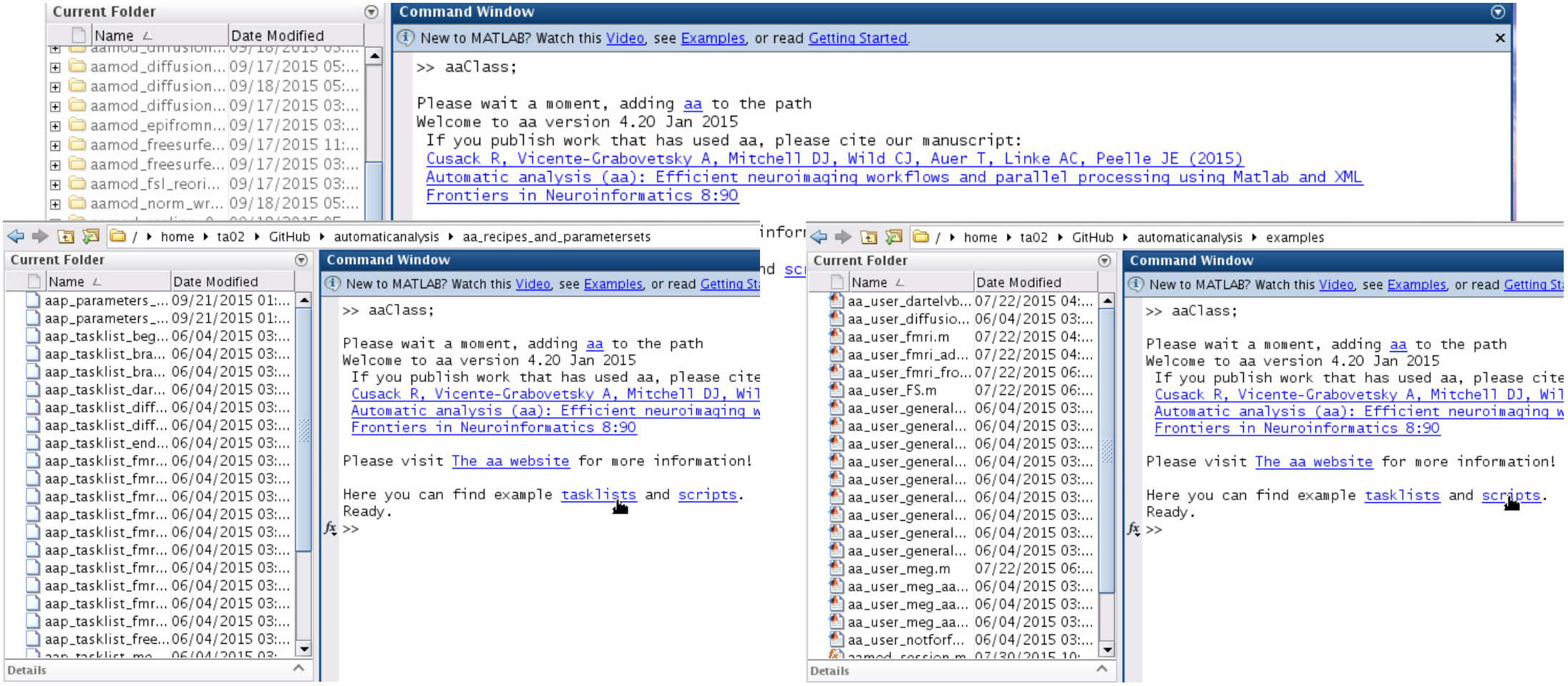


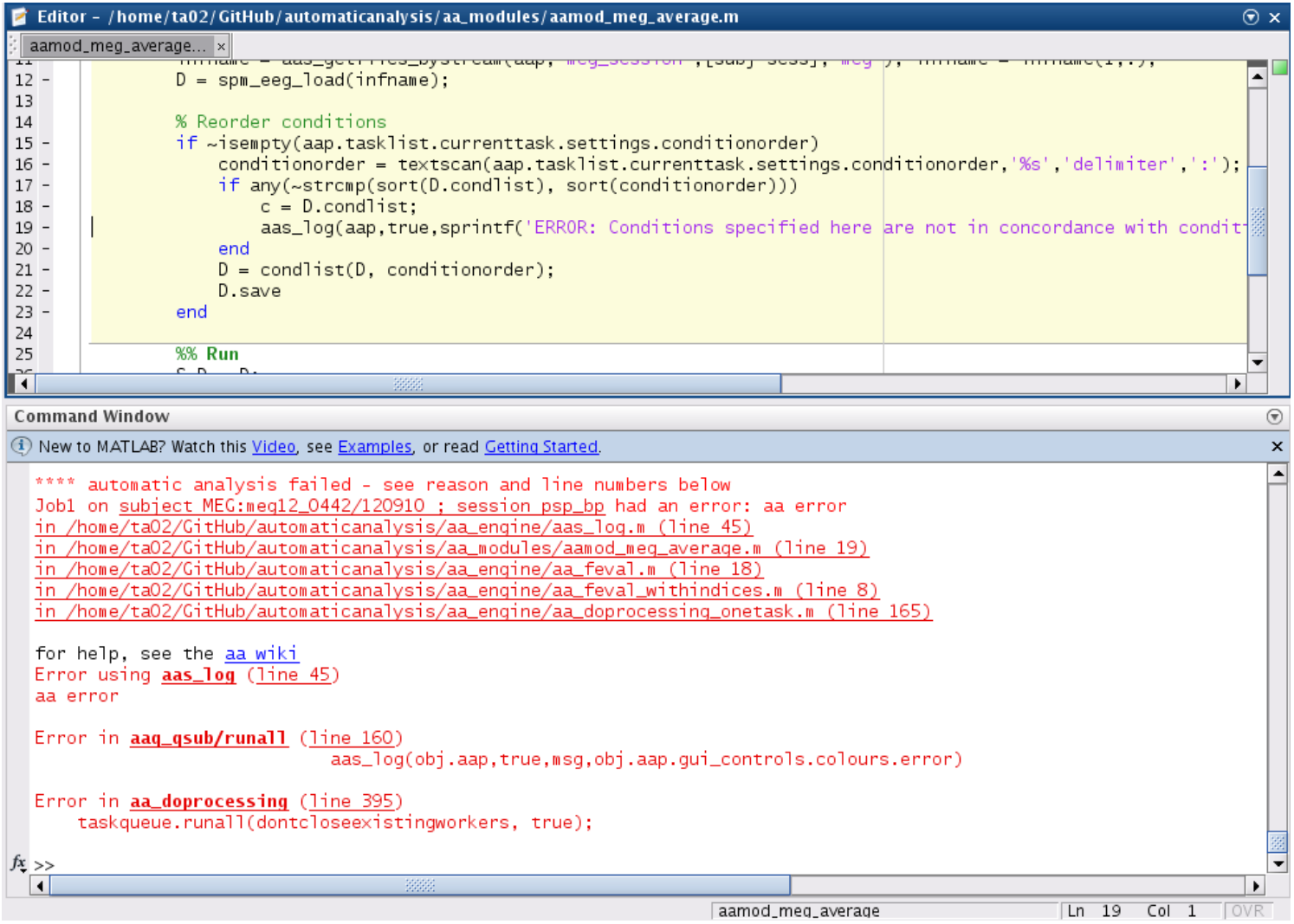
Convenience

- **Running**
  - aa Intro



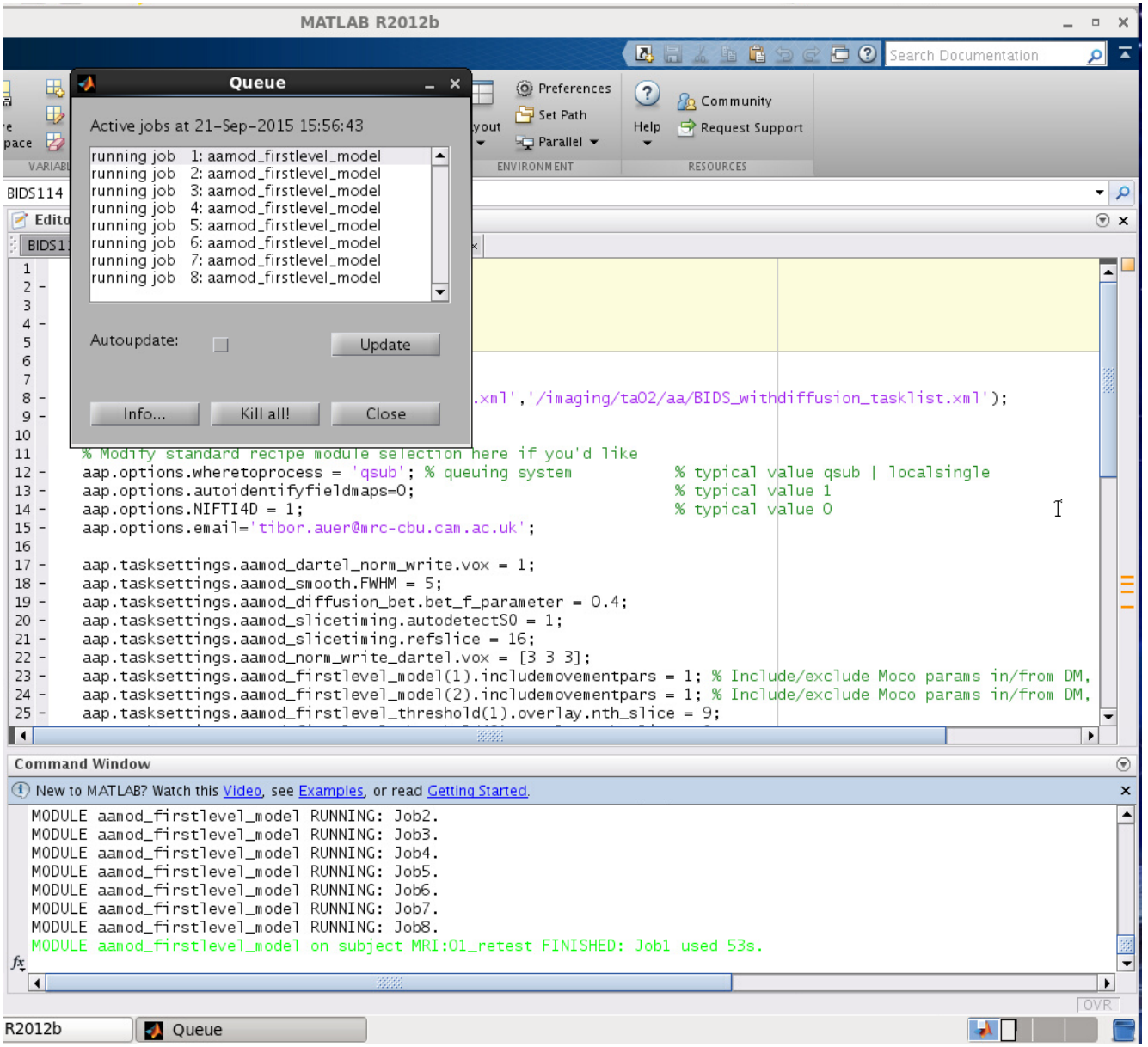
Convenience

- **Running**
  - qsub provides links to code in case of error



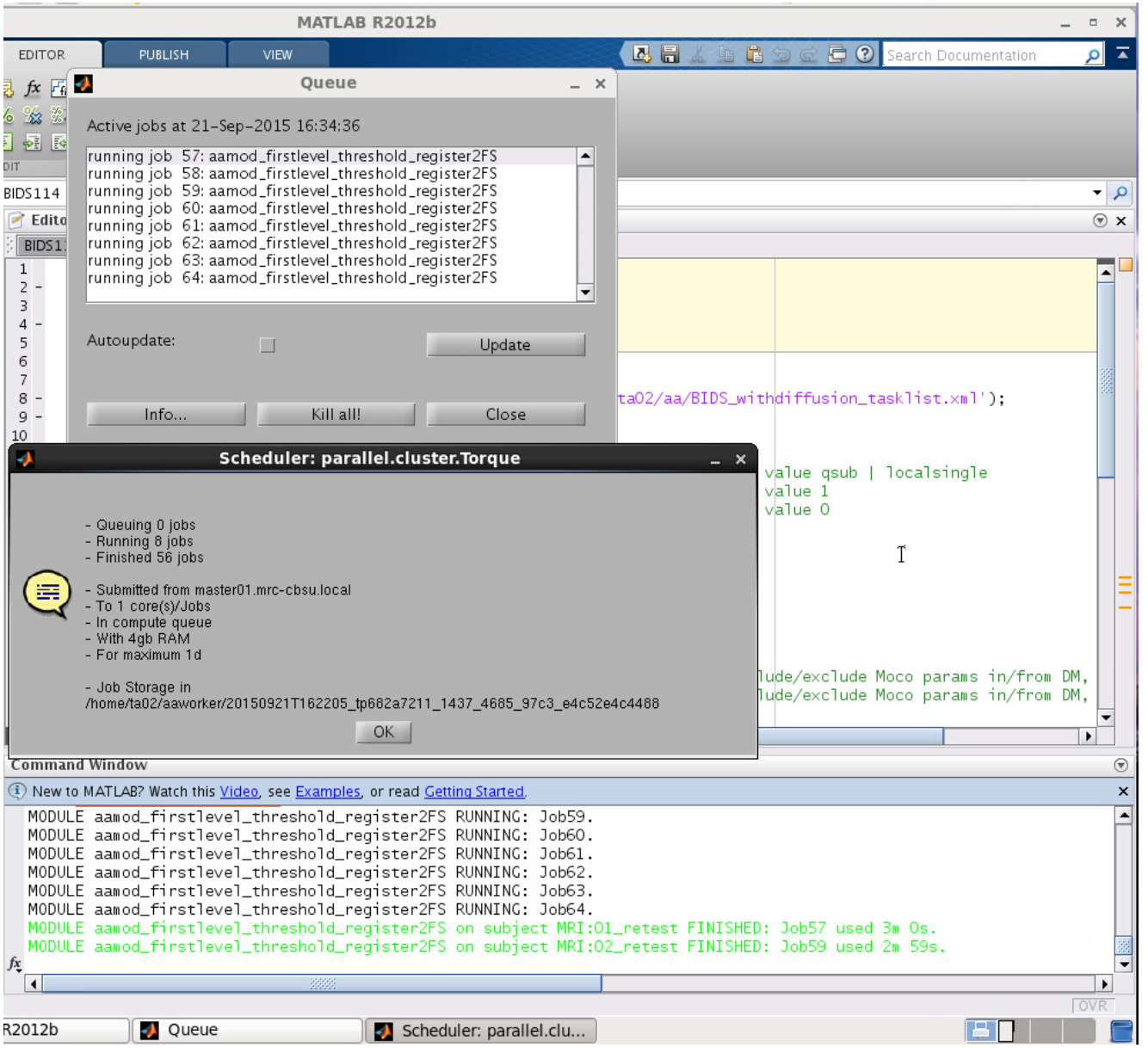
Convenience

- **Running**
  - GUI for qsub
    - Main window[1]



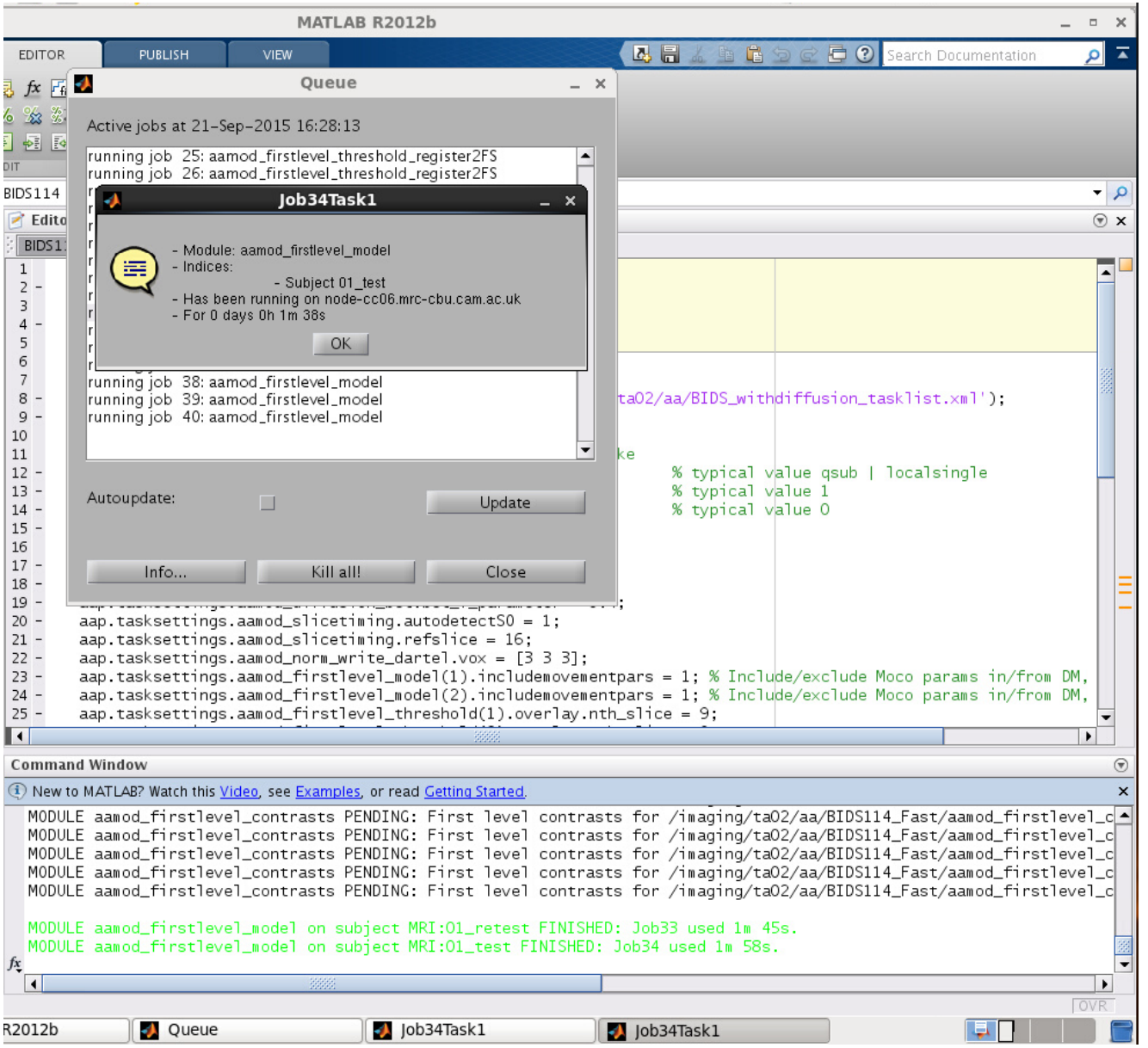
Convenience

- **Running**
  - GUI for qsub
    - Info...

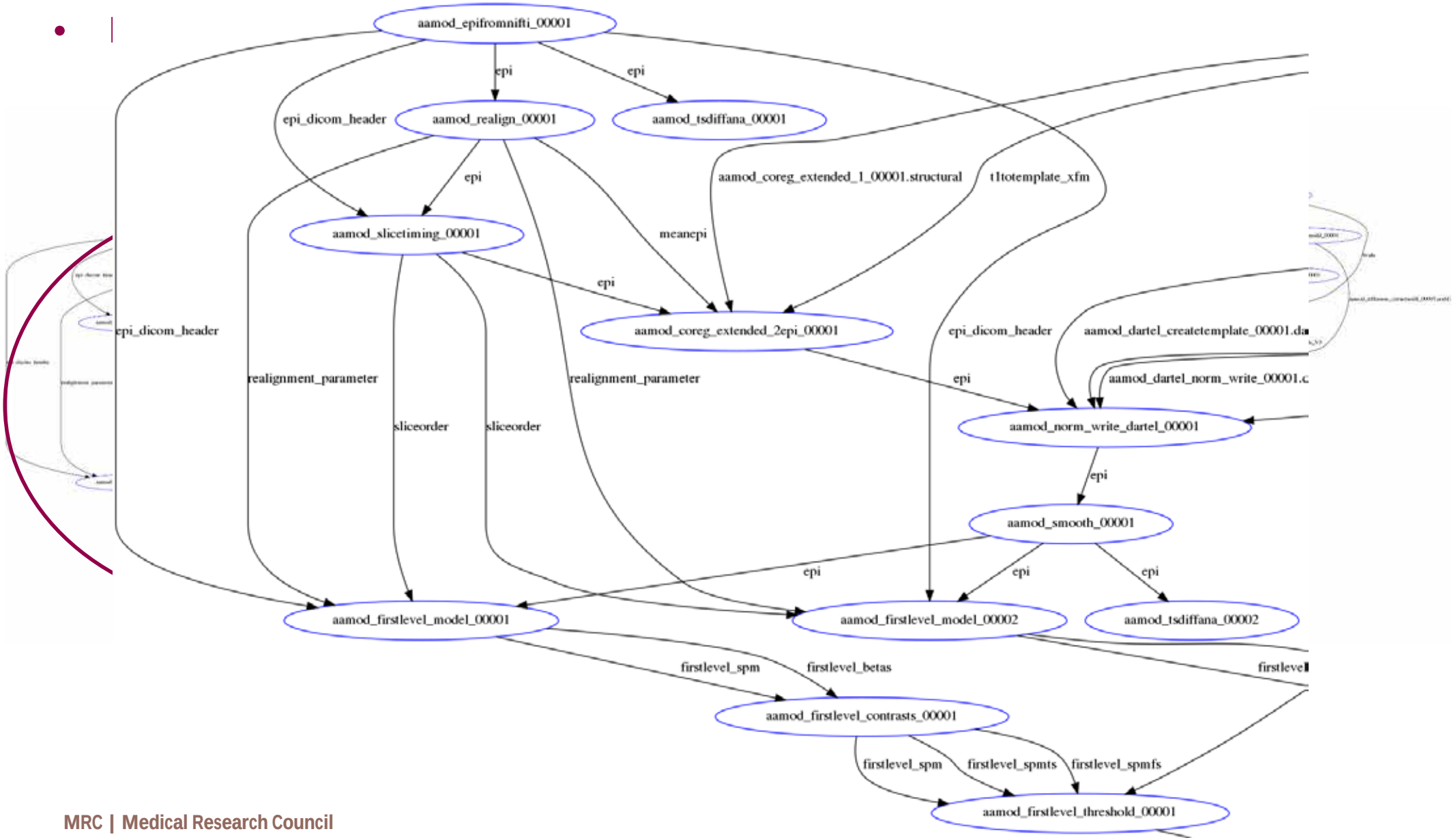


Convenience

- **Running**
  - GUI for qsub
    - Job

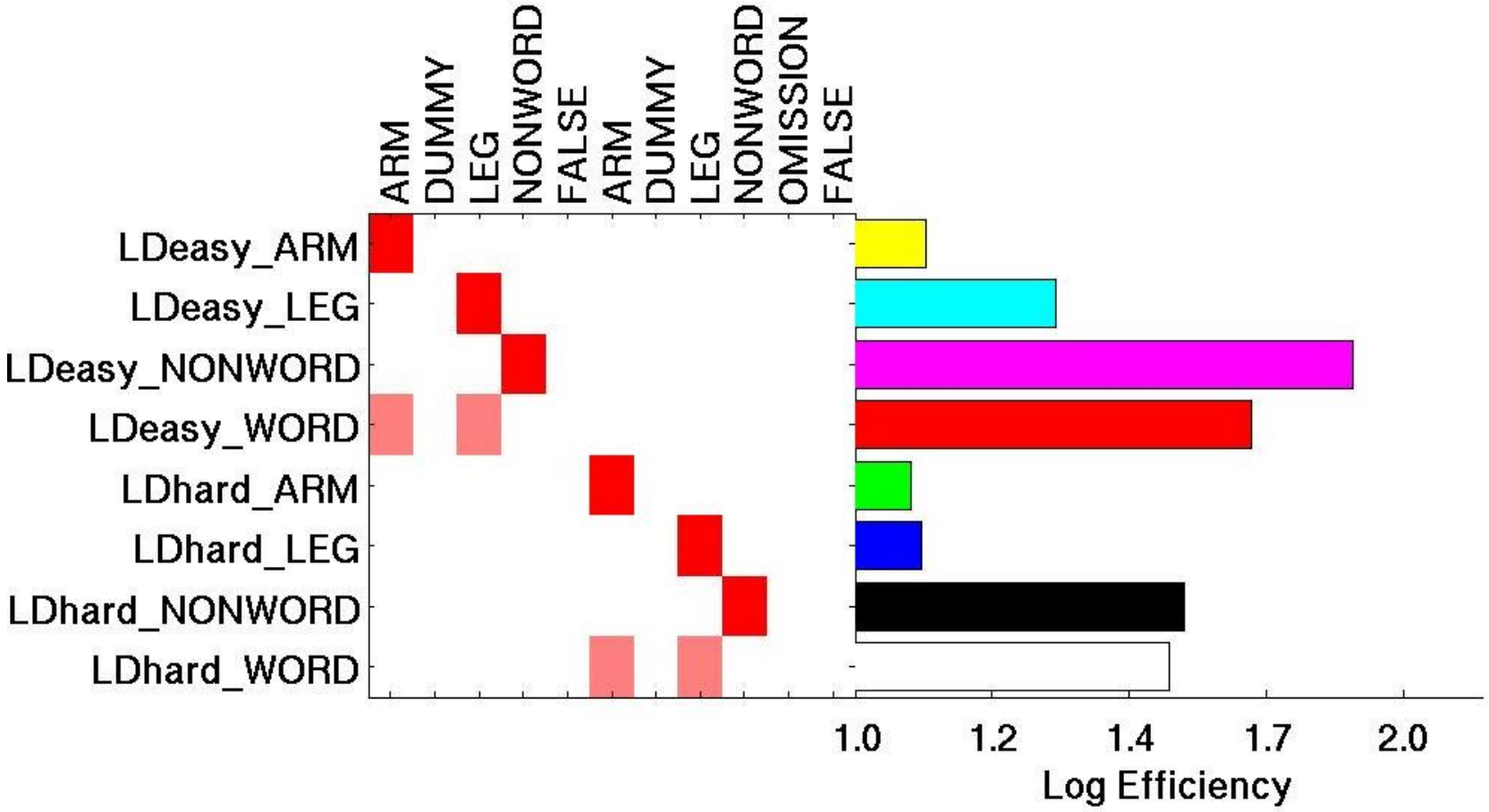


Convenience



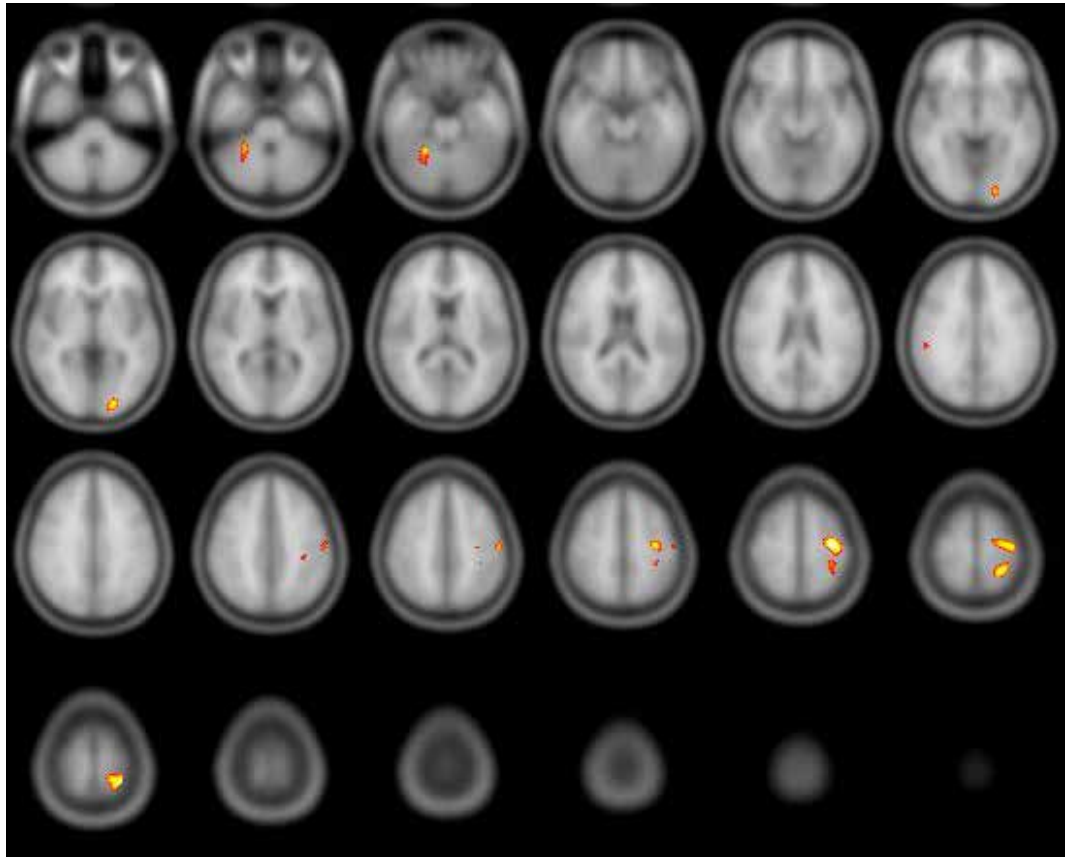
Convenience

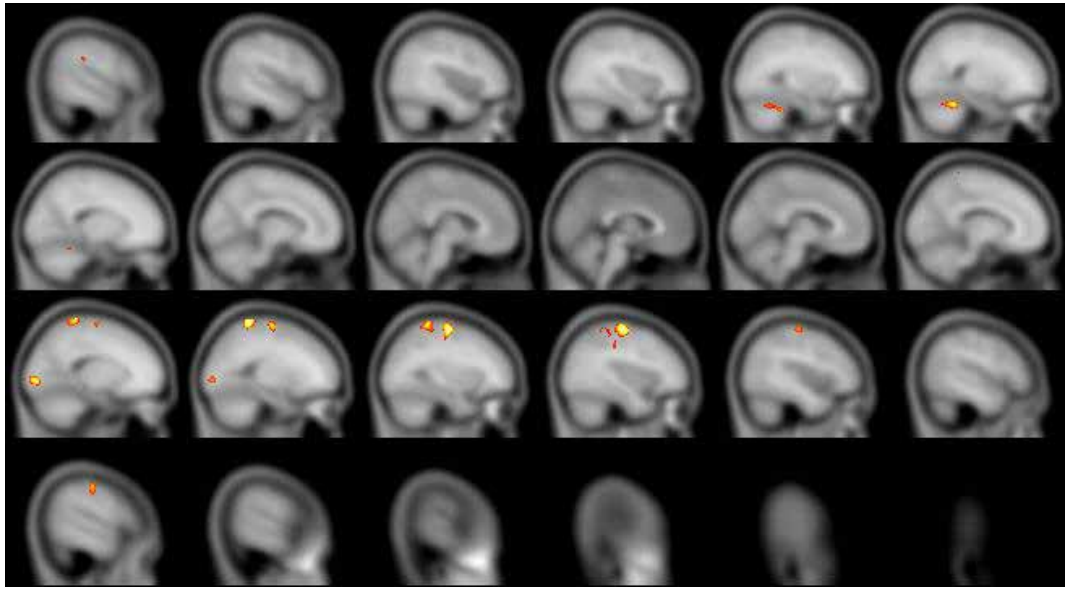
- **Results**
  - Consistent (and nice) graph of contrasts

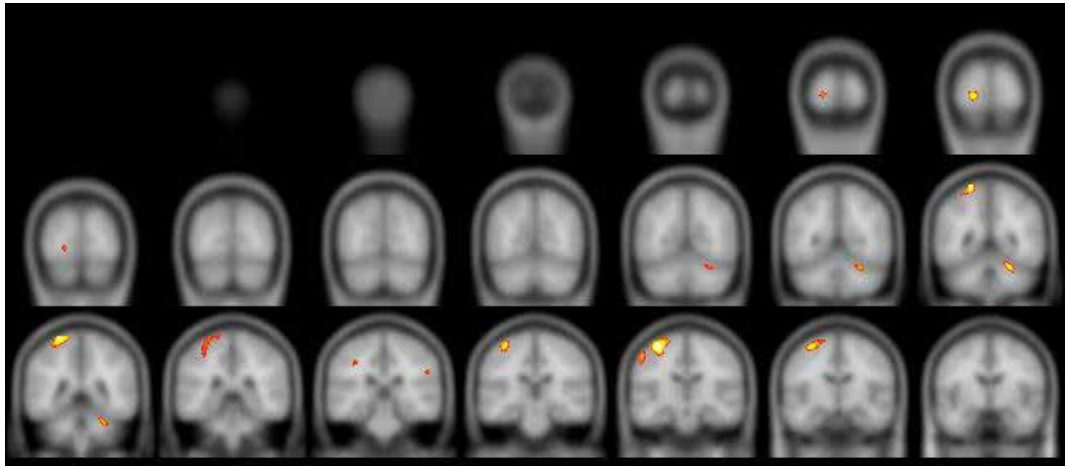


Convenience

- **Results**
  - *aamod_firstlevel_threshold* creates overlays across all three axes







New features

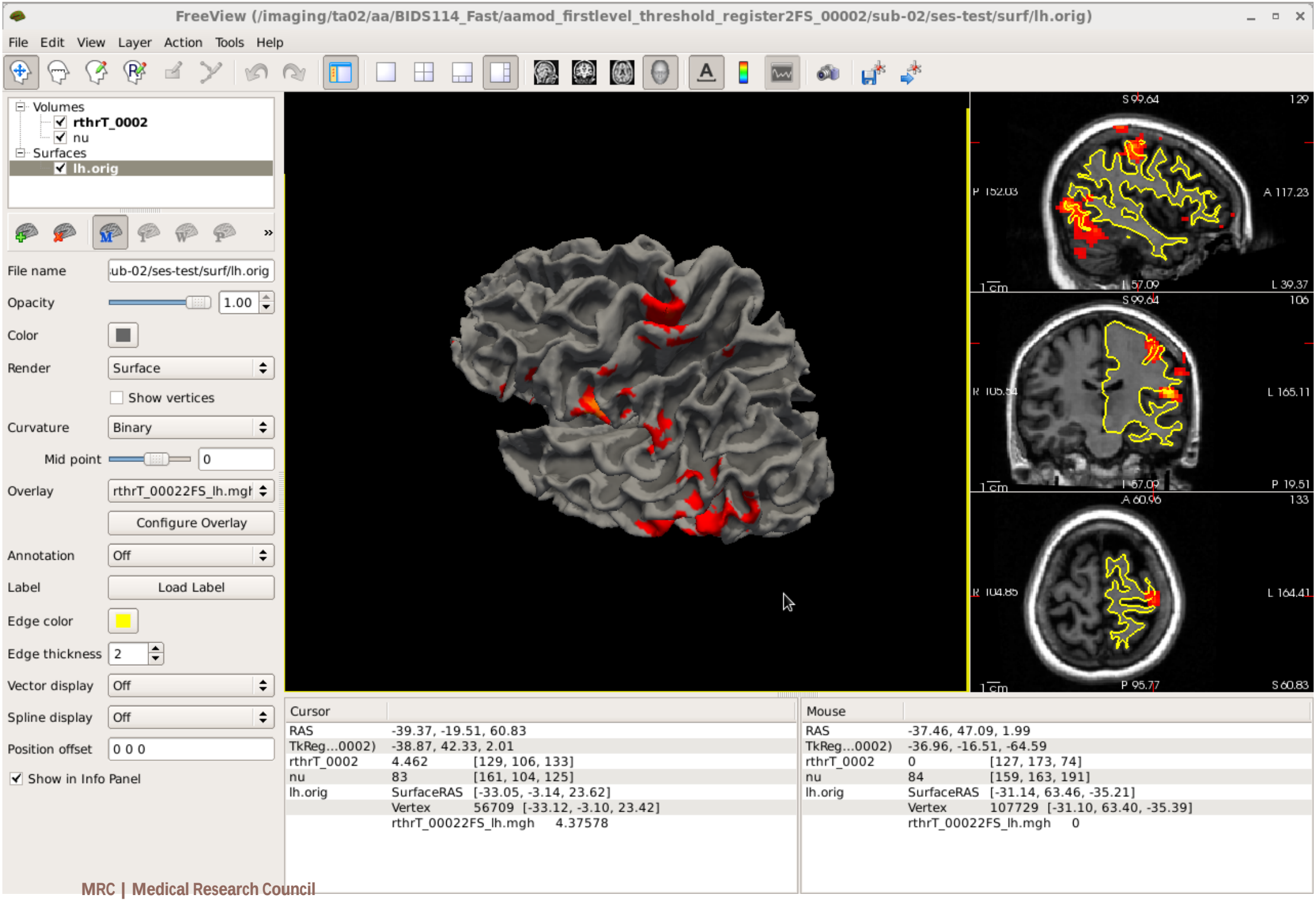
- **General**
  - dynamic modification of streams (*aas_renamestream*)
  - E.g.: aamod_maths to calculate resting-state fluctuation amplitude (RSFA)

aamod_maths.xml

```
% Specify equation
aap.tasksettings.aamod_maths.operation = 'std(X,[],4)';
% Use ‘epi’ as input
aap = aas_renamestream(aap,'aamod_maths_00001','input','epi');
% Output ‘RSFA’
aap = aas_renamestream(aap,'aamod_maths_00001','output','RSFA','output');
```

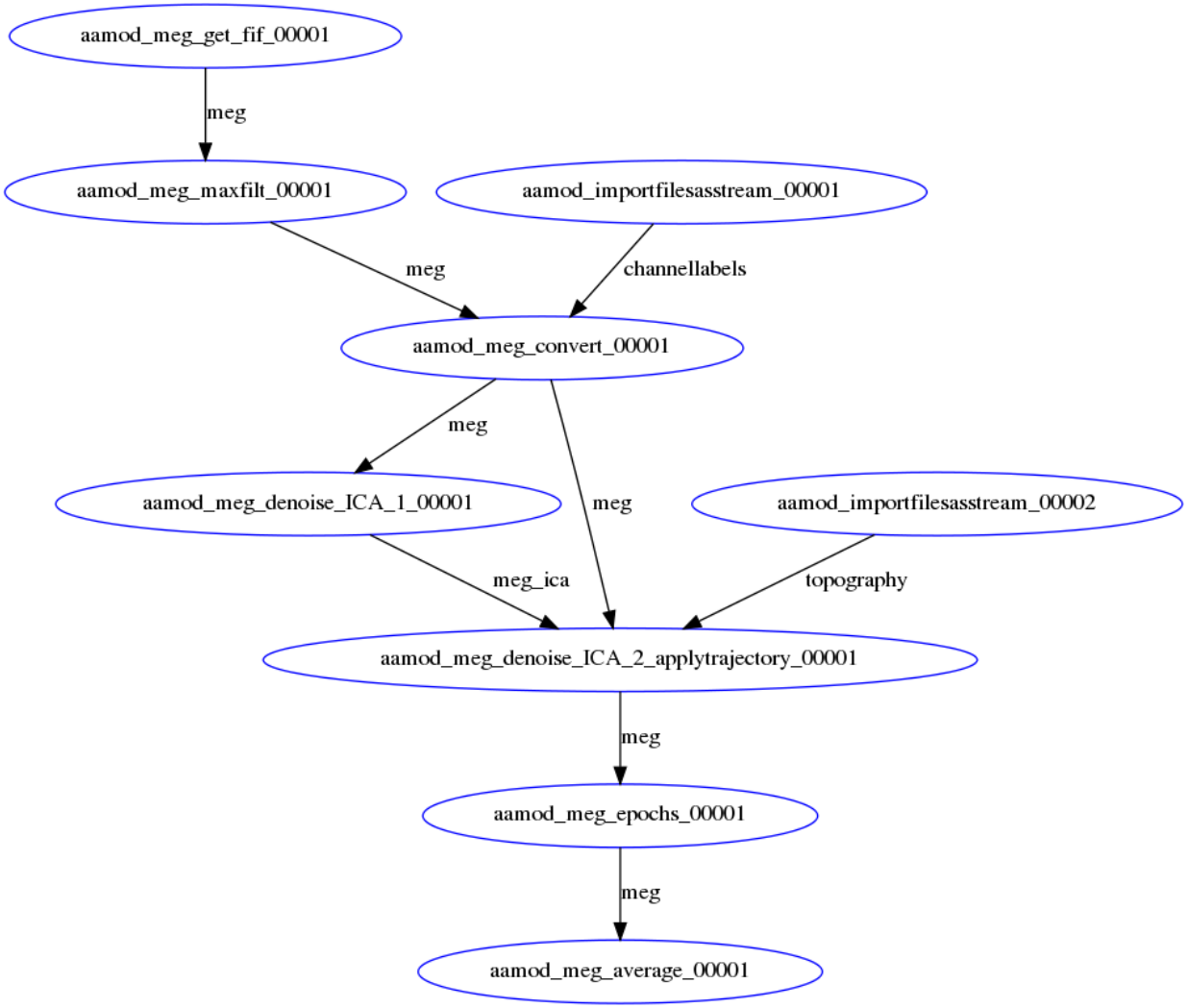
New features

- **fMRI:**
  - Automatic slicetiming with exact timing from DICOM header
    aap.tasksettings.aamod_slicetiming.autodetectSO = 1;
  - Automatic temporal modulation
    parametric.name = 'time'
    parametric.P = [];
    parametric.h = <polynomial expansion>;
    aap = aas_addevent(…,parametric);
  - Second-level GIFT



New features

- **MEG:**
  - Maxfilter
  - ICA Denoising
  - Epoching
  - Averaging



Info/Support

Website: http://automaticanalysis.org
GitHub: https://github.com/rhodricusack/automaticanalysis/blob/v5-stable/README.md
GitWiki: https://github.com/rhodricusack/automaticanalysis/wiki
Our Wiki: http://imaging.mrc-cbu.cam.ac.uk/imaging/AA

Maasters