Global Rotation Inversions

- Input (for each 72d or 108d [or whatever] spectrum):
  - Frequencies
  - Odd *a*-coefficients or splittings (up to say *l*=400??) – what peakfinding code?
  - Errors
  - Eigenfunctions (from model)
  - Regularization choice (standard or adaptive?)
  - Near-surface results from local helioseismology

Global Rotation Inversions: Output

- Rotation profile (Ω vs r, θ) (CZ dynamics)
- Errors
- Averaging kernels (1 per target) (QA)
- Inversion coefficients (1 set per target) (QA)
- Correlation coefficients (QA)
- RLS residuals (QA)

Global Rotation Inversions -- extras

- More than one inversion code (OLA?)
- Custom inversions – web interface
  - RLS inversions already ‘cheap’, ought to be doable on laptop by 2006!
  - Allow user to
    - select regularization
    - trim mode set
- Cumulative flow plots, movies
- Implement something similar for GONG DSDS

Time Required

- Incorporating local-helioseismology results: 6mths
- Investigate adaptive regularization: 2 months
- Develop scripts and data formats to automate inversions for MDI : 1 month
- ----------LAUNCH----------
- Adapt to HMI data: 1 month
- Cross-validate HMI results: 2 months
- Solve the mystery of the solar cycle: priceless!

Local Mode Parameters

- Use magnetic parameter changes from ring diagrams to probe near-surface structure, fields.
- ‘Back out’ magnetic effects to get frequencies for global structure inversions
- Input: Ring-diagram parameters
- Output: Structure info.