

# FITS Birds of a Feather Session

ADASS Meeting

London, U.K.

Monday 24 Sept 2007

7:30 – 9:00 pm

# FITS BoF Agenda

1. Registry of FITS Conventions
2. WCS standards for Distortions and Time
3. New FITS Standard Document
4. The Future of FITS
5. Any Other Business

# FITS Registry

- 10 Conventions have been documented
  - OIFITS – Optical Interferometry data format
  - MBFITS – Multi-beam mm and submm data format
  - CHECKSUM keyword
  - Column Limits keywords
  - Tiled Image Compression convention
  - Hierarchical Grouping convention
  - FOREIGN file encapsulation (pending revision)
  - INHERIT keyword
  - CONTINUE Long String Keyword (under review)
  - ESO HIERARCH keyword (under review)

# More conventions to be added

- EURO3D format for optical 3D spectral data
- IDI Interferometry Data Interchange radio data format
- SDFITS Single Dish format (maybe, if diverging formats can be reconciled)
- CREATOR keyword
- ... there must be others!

At the current rate, most of the common FITS conventions should be registered within a year.

## 2. WCS Progress Reports

1. On Representing Distortions
2. On TIME Coordinate Systems

# WCS Paper on Distortions

- A 17-page draft paper has been written by Calabretta, Valdes, Greisen, and Allen.
- Sadly, there has been little or no progress since the last version dated April 2004.
  - Sidelined by work on Healpix projection, and enhancements to WCSLIB.
- Lead author hopes to make some progress in the next year, but probably will still not be completed.

# WCS Paper on Time Coordinates

- Status report by A. Rots

# 3. FITS Standard Document

- A Technical Panel set up by the IAU FWG has recommended significant changes.
- Available for public comment at <http://fits.gsfc.nasa.gov>
- Proposed no radical changes, but many small updates and clarifications.
  - More than 500 individual changes to the text!
- **PLEASE HELP PROOFREAD THE DRAFT!!!**
  - Comment period ends October 12th.

# Some of the Proposed Changes

1. Deprecate 'Special Records'
2. Deprecate implicit decimal points in ASCII table floating point fields
3. No longer need to pad character keyword values to 8 chars long
4. EXTEND keyword no longer required in multi-HDU files
5. EXTNAME, EXTVER, EXTLEVEL may be used in primary HDU
6. Embedded spaces in numeric ASCII table fields PROHIBITED
7. Only create new FITS extension types if really necessary
8. Preserved order of keywords during data processing if possible
9. Keywords with a value should only appear once in a header
10. All table columns should have a name given by TTYPE*n*
11. New WCS chapter, and new section on physical units strings
12. Hundreds of other editorial and typographical changes

# Formal Approval Procedure

- Public Comment Period closes in October
- Tech Panel will produce a new draft
- The 4 Regional FITS committees will formally review and comment on the draft
- Comments will be folded into a final draft
- IAU FWG will formally vote on the draft

This all could be completed by early 2008.

# FITS Users Guide

- The current Users Guide is out of date and would require much work to restore.
- However, the draft FITS Standard document now contains more usage notes and guidelines that were formerly only found in the Users Guide.
- This reduces the need for a separate Users Guide.
- Should we abandon further support for the Users Guide and just leave it in it's current state, for historical reference?
  - If so, should probably add a preface to warn readers that some of the information is no longer accurate.

## 4. The Future of FITS

- FITS is now 28 years old.
- Is it still serving the needs of the astronomical community?
- Should we consider a major overhaul, or even a replacement to FITS??
- Do we, as a community, have the motivation, resolve, and resources to consider major changes to our basic data format?

# Recall...

At the last BoF, an informal poll was taken on whether to consider ways of removing some FITS restrictions (e.g. 8-char names, 80-char records):

## Votes

- 22 Yes, but still preserve basic FITS HDU structure
- 19 Yes, and allow more radical changes to structure
- 4 No, FITS is OK as is, so don't make major changes
- 2 no opinion

This suggests that there is a desire to make improvements to FITS, but how should we proceed? One option is for the IAU FWG to appoint a study group to consider the possible alternatives and make recommendations.