

Center for Astronomical Data and Software at IIA



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Motivation

- Open access to data.
 - Virtual Observatory.
 - Virtual Solar Observatory.
- Open access to publication.
 - ADS.
 - Astro-ph.
- Democratization of science.
- Bangalore name in software.

- IIA has always been a source of data.
 - Kodaikanal Solar Observatory (Kodaikanal).
 - VBO (Kavalur).
 - IAO.
- Space missions now coming.
 - TAUVEX.
 - ASTROSAT.
- *IIA data should be open and accessible.*

Goals

- Provide a one-stop shop for astronomical software.
 - Cross-mission development centre.
 - Support individual scientists in software implementation.
- Astronomical Data Centre at IIA.
 - Provide consistent interface to IIA data.
 - Locally mirror international data.
- A data centre must be more than a place to store data.

- Activity has grown out of TAUUVEX mission.
 - <http://tauvex.iiap.res.in>
- Indo-Israeli mission to map UV sky in three bands.
 - To launch on GSAT-4 in late 2007.
- Responsible for software development.
 - Mission simulation.
 - Software pipeline.
 - Archiving and dissemination of data.

- 6 people.
 - JM, 1 PDF (Rekshesh Mohan), 4 software trainees (M. Fayaz, Vaishali Sharan, Geetha L., Sowjanya).
 - Located in CREST campus (in Hosakote).
- Completing TAUVEX related activities.
 - Pipeline coding close to completion – first (?) pipeline coded entirely in Java.
 - Archiving and related activities to start.

Fits Header Viewer

The screenshot shows the 'FitsHeader: -0.6' application window. At the top, there is a text field for 'FitsFileName:' containing the path '00020037003um2_sk.img' and a 'Browse' button. Below it is a dropdown menu for 'Ext.No:' set to '0', with 'Save' and 'Exit' buttons. The main area is a table with three columns: 'Key', 'Value', and 'Comment'. The table lists various FITS header keywords and their corresponding values and descriptions. A small 'insert delete' button is visible over the 'SEG_NUM' row. The window has standard Windows-style window controls (minimize, maximize, close) in the top right corner.

Key	Value	Comment
SIMPLE	T	file does conform to FITS standard
BITPIX	8	number of bits per data pixel
NAXIS	0	number of data axes
EXTEND	T	FITS dataset may contain extensions
COMMENT		FITS (Flexible Image Transport System) format
COMMENT		and Astrophysics', volume 376, page 359; bibcode
TELESCOP	SWIFT	Telescope (mission) name
INSTRUME	UVOTA	Instrument name
FILTER	UVM2	Filter
OBS_ID	00020037003	Observation ID
TARG_ID	20037	Target ID
SEG_NUM	3	Segment number
TIMESYS	TT	time system
MJDREFI	51910	MJD reference day 01 Jan 2001 00:00:00
MJDREFF	0.00074287037	MJD reference (fraction of day) 01 Jan 2001 00:
CLOCKAPP	F	If clock correction are applied (F/T)
TIMEUNIT	s	Time unit for timing header keywords
TSTART	176776079.857	Start time
TSTOP	176858281.806	Stop time
DATE-OBS	2006-08-09T00:...	Start date and time
DATE-END	2006-08-09T23:...	Stop date and time
ORIGIN	GSFC	Source of FITS file
CREATOR	UVOT2FITS V3....	Program that created this FITS file
TLM2FITS	V3.16	Telemetry converter version number
DATE	2006-08-15T06:...	file creation date (YYYY-MM-DDThh:mm:ss UT)

Infrastructure

- IIA main campus has 5 Mbps link – to be upgraded to 8 Mbps.
- CREST has 2 Mbps link – to be upgraded to 5 Mbps
- Kodaikanal, Kavalur, Gauribidanur to have 2 Mbps links.
- IBM data servers in process of being procured.
 - Immediately ~ 20 TB spread across campuses.
- Internal CAT-6 (gigabit) backbone with wireless.

Computing Facilities

- 8 node Sun cluster – to be upgraded to 16 node cluster.
- Part of the National Grid for high performance computing.

Future Plans

(Things the Director Doesn't Know)

- Increase programmer count to 10.
 - Two (3) year positions with 3 people being hired every year.
 - Novice programmers who get trained.
- Add scientists.
 - PDF and permanent staff.

Future Plans

(Things the Director Doesn't Know)

- Internal collaborations.
 - Kodaikanal digitization.
 - IAO archiving.
- International Collaborations
 - Astrostatistics (Jogesh Babu).
 - Virtual Observatory.
- Talented pool of programmers but need projects.

Outreach

- Already training programmers.
 - More than 20 students on short term projects.
- Should be part of a larger program to use astronomical data and techniques.
 - Short term student projects.
 - Long term aid for PhD students.
 - Help for universities.

Problems

- Manpower.
 - Severe shortage of qualified people.
- Lack of supervision.
 - Often need to micromanage.
- Need scientific involvement.
 - People are too involved with daily tasks.
- Teething issues.