

Heritage WG - 10<sup>th</sup> IACHEC meeting

---

# Agenda

---

1. Actions
2. JATIS paper on in-flight calibration plans
3. Data analysis standard technical note
4. Repository of calibration documents
5. IACHEC competence database

# 1. Actions

List of OPEN actions (in reverse time order)  
-----

ACTION 140915/1: "Provide a list of calibration papers and documents to be posted on the WG Wiki"

Actionees: Andy Beardmore (Swift), Karl Forster (NuSTAR), Matteo Guainazzi (XMM-Newton), Eric Miller (Suzaku/XIS), Lorenzo Natalucci (INTEGRAL), Yuki Terada (Suzaku/HXD)

Deadline: 15-OCT-2014

Done by Chandra only

ACTION 140515/6: "Organise a discussion on the photoelectric absorption models and associated abundances and cross-section conventions with external experts"

Actionee: Matteo Guainazzi

Deadline: 21-SEP-2014 (to send the invitation message)

STATUS: OPEN

COMMENTS: list of external experts to be contacted: Elisa Costantini, Teru Enoto, Adam Foster, Jelle Kaastra, Julia Lee, Mike Novak, Naomi Oda, Randall Smith, Martin Weisskopf, Joern Wilms  
The Workshop should include also thermal emission models

Done

ACTION 140515/4: "Verify if the RSSFeed mechanism can be used to communicate communication updates through the IACHEC News web page coming from HEASARC"

Actionee: Eric Miller

Deadline: 10th IACHEC Meeting

STATUS: OPEN

?

ACTION 140515/3: "Include NuSTAR in PyBLOcXS, and prepare a demo at the 10th IACHEC"

Actionees: Larry David & Kristin Madsen

Deadline: 10th IACHEC Meeting

Status: OPEN

Closed (subsumed by the Calibration Uncertainties WG)

ACTION 140515/2: "Comment on the draft JATIS paper on in-flight calibration plans"

Actionees: WG members

Deadline: 6-OCT-2014

Status: OPEN.

Done

## 2. JATIS paper

Version 0.6: Comments by Grant, Miller, Petre still to be included

---

### **A synoptic view of X-ray in-flight calibration plans<sup>1</sup>**

**Matteo Guainazzi<sup>a,b</sup>, Laurence David<sup>c</sup>, Catherine Grant<sup>d</sup>, Jukka Nevalainen<sup>e</sup>, Robert Petre<sup>f</sup>, Marc Audard<sup>g</sup>**

<sup>a</sup>ESA-European Space Astronomy Centre (ESAC), Villafranca del Castillo, E-28692, Madrid, Spain

<sup>b</sup>Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency (JAXA), 3-1-1 Yoshinodai, Chuo-ku, Sagami-hara, Kanagawa 252-5210, Japan

<sup>c</sup>Harvard-Smithsonian Center for Astrophysics, 60 Garden St., Cambridge, MA 02138, USA

<sup>d</sup>Massachusetts Institute of Technology 37-551, 77 Massachusetts Ave., Cambridge, MA 02139-4307

<sup>e</sup>Tartu Observatory, 61602 Toravere, Estonia

<sup>f</sup>NASA, Goddard Space Flight Center, Greenbelt, MD, 20771 USA

<sup>g</sup>Department of Astronomy, University of Geneva, Ch. d'Ecogia 16, 1290, Versoix, Switzerland

**Abstract.** Ideally a complete set of ground-based calibration measurements should under-pin a full characterization of the physical model describing detectors flown on-board space observatory. More often than not, however, this is not the case due to time and budgetary restrictions during the development phase, or to the - somewhat inevitable and unpredictable - degradation of instrument performance in space. In this paper we present a synoptic view of the set of celestial sources used for in-flight calibration of X-ray detectors by past and operational missions. This summary could be beneficial for future mission to optimize the critical early phases of their science operations.

# 3. Data analysis standards - survey outcome

---

Survey started on February 9, 2015

Answers: Costantini, Kaastra, Smith, Weisskopf, Wilms

---

International Astronomical Consortium for High-Energy Calibration

IACHEC Report Series#3

**Standards for spectral calibration data analysis**

IACHEC Heritage Working Group  
Version 0.1

April 8, 2015

## 1 Background

At its first meeting in Virginia, the IACHEC Heritage Working Group agreed to compile a list of “best practices” for the analysis of spectroscopic calibration data. The ultimate goal of this study is

### 3. Data analysis standards - current status

Item	Photoelectric absorption model	Photoelectric absorption cross-sections	Elemental abundances	Optically thin plasma code
Advise as of 22/APR/15	tbnew (XSPEC) hot+amo1 (SPEX)	Verner & Yakovlev (1995)	Lodders & Palme (2009)	apec (XSPEC), cie (SPEX)

\*this is not lodd in XSPEC!

### 3. Data analysis standard - how to proceed?

---

- Slightly disappointed by the response (only 3 answers with useful suggestions out of 10 consulted expertes).  
**Shall we extend the survey?**
- **Shall we make some benchmark** on the effect of the different choices on IACHEC sources (galaxy clusters, PKS2155-305, 1E0102-72?)
- Shall we include the **goodness-of-fit issue** (see discussion at the Calibration Uncertainties WG)?
- **How shall we publish** the results?

## 4. Repository of calibration documents

---

- Only Chandra (thanks!) fulfilled the action.
- By when could other projects realistically provide inputs?
- Shall we put on the Wiki whatever we got by the next deadline?



## 5. IACHEC knowledge database

---

- K.Forster proposal in the plenary session on “in-flight calibration plans”
- Proposal: prepare (and circulate to the WG members for comments) a 1-page questionnaire asking for: a) instrument expertise; b) scientific (i.e., source class) expertise - Action on MG by the end of May 2015