

HepData

Graeme Watt (IPPP Durham)
AAHEP8 Information Provider Summit
Amsterdam, 2nd September 2015

<http://hepdata.cedar.ac.uk>

 Follow @HepData

What is HepData?

<http://hepdata.cedar.ac.uk>

- Unique *open-access* repository for scattering **data** from experimental **High Energy Physics** (“**hep-ex**”) papers.
- Options to make plots and export to various formats.
- Based in **Institute for Particle Physics Phenomenology (IPPP)** at **Durham University (UK)**, going back to **1970s**.
- Funded by **UK Science & Technology Facilities Council (STFC)**. Grant to support 2 staff just extended to **2019**.

Who is HepData?



Graeme Watt



Mike Whalley



Joanne Bentham

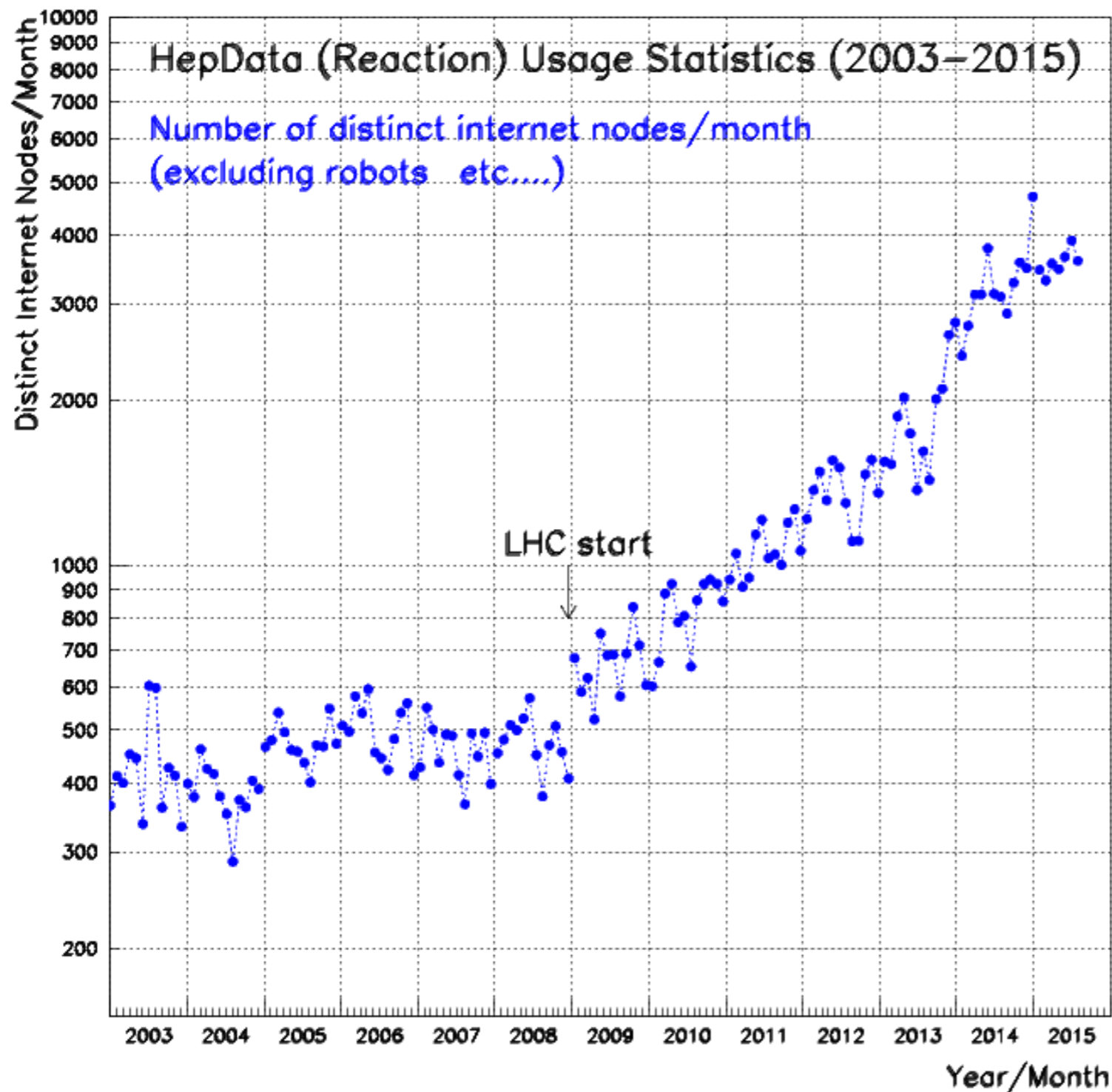


Frank Krauss

- **Graeme Watt:** Database Manager (2013-)
- *Mike Whalley:* Previous Database Manager
- **Joanne Bentham:** Administrative Assistant
- *Frank Krauss:* Principal Investigator (2014-)

New Advisory Board with annual meetings (2014-)

Access statistics (2003-2015)



- Plot (by [M. Whalley](#)) counts number of distinct internet nodes per month.
- Factor **~8 increase** in usage over last decade, following LHC start-up.

Modes of data entry

1. Manually harvested from “hep-ex” papers. Extract tables from .tex source files, mostly by assistant. **TO DO: more automation desired.**
2. Data directly submitted by experiments.
 - Past: no guidelines on preferred format, needed to manipulate into standard format.
 - Early 2014: encourage experiments to provide standard “input” text format.

Clearly need to move more papers from 1. to 2.

Automated submission system

(Procedure agreed in HepData meeting at CERN on 26th June 2014)

Administrator

(e.g. convener of physics group)

<http://hepdata.cedar.ac.uk/manage>

Enter Inspire ID to allocate paper.
Password sent by email.

Receive email notification that
record is 'Ready' on test DB.

OK?

No

Yes

Add record to public DB.

Encoder

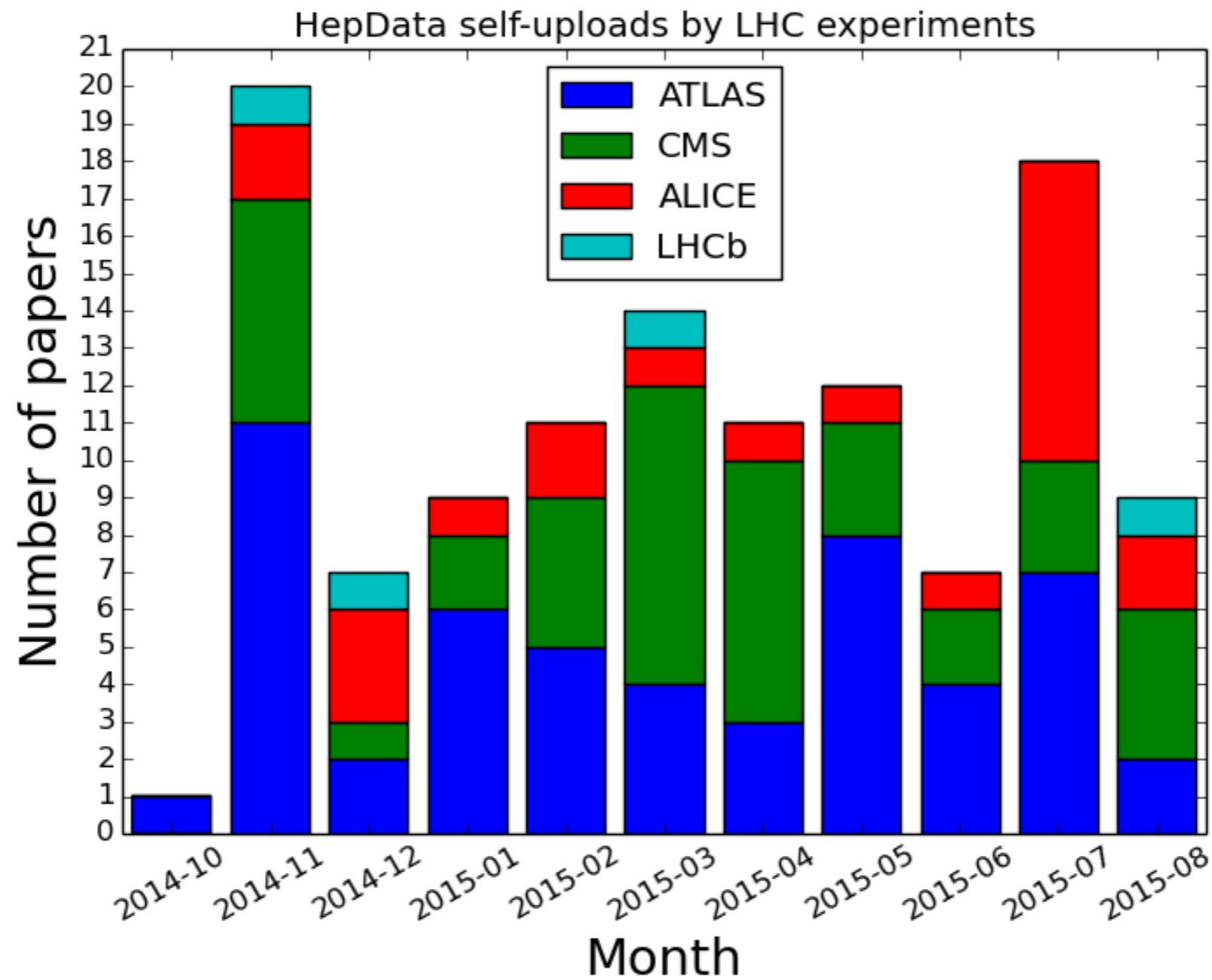
(e.g. primary author of physics analysis)

<http://hepdata.cedar.ac.uk/input>

Upload text file in "input" format
(+ optional supplementary files).
Record is added to test DB.
Flag as 'Ready' once satisfied.

- First paper added by ATLAS SUSY group on 28th October 2014.

Submission system usage



G. Watt (2015-08-28)

- Total of 119 LHC papers: ATLAS (53), CMS (40), ALICE (22), LHCb (4).

HepData SOON HEPData

- Current HepData software (MySQL+Java) developed as part of the CEDAR project (2005-2009).
 - First attempt to integrate with [Inspire](#) (2012).
- Meeting with [Inspire](#) in December 2014 to start working jointly towards a new HEPData web site.
 - Overlay on Invenio digital library software.
 - Better searching, DOIs, versioning, auxiliary files.
 - New input data format based on ~~ROOT~~ / YAML.

Work on HEPData by CERN team



Eamonn Maguire



Laura Rueda Garcia



Jan Stypka

+ Michal Szostak (CERN summer student)

+ others

Code: <https://github.com/HEPData>

- Amazing work from CERN team in only a few months!

Test site at hepdata.net

HEPData Search HEP Data Search Submit Help Sign in

Browse all Aad, Georges et al.

Analysis of events with b -jets and a pair of leptons of the same charge in pp collisions at $\sqrt{s} = 8$ TeV with the ATLAS detector

Aad, Georges, Abbott, Brad, Abdallah, Jalal, Abidinov, Ovsat, Aben, Rosemarie, Abolins, Maris, AbouZeid, Ossama, Abramowicz, Halina, Abreu, Henso, Abreu, Ricardo

Abstract
An analysis is presented of events containing jets including at least one b -tagged jet, sizeable missing transverse momentum, and at least two leptons including a pair of the same electric charge, with the scalar sum of the jet and lepton transverse momenta being large. A data sample with an integrated luminosity of 20.3 fb^{-1} of pp collisions at $\sqrt{s} = 8$ TeV recorded by the ATLAS detector at the Large Hadron Collider is used. Standard Model processes rarely produce these final states, but there are several models of physics beyond the Standard

Data Abstract
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Filter 10 data tables:

Table 1 > Observed and expected number of events with statistical (first) and systematic (second) uncertainties for the positively charged top pair signal...

Table 2 > Observed and expected number of events with statistical (first) and systematic (second) uncertainties for five of the signal regions defined...

Table 3 > Observed and expected number of events with statistical (first) and systematic (second) uncertainties for three of the signal regions defined...

Table 4 > Observed limits on the pair production cross section as a function of mass for vector-like B quarks. These limits assume...

Table 5 > Observed limits on the pair production cross section as a function of mass for vector-like T quarks. These limits assume...

Table 6 >

Observed and expected number of events with statistical (first) and systematic (second) uncertainties for the positively charged top pair signal selection. The p-values for agreement between the observed yield and the expected background in each signal region are reported

observables N

Data

| | SRTtee | SRTTemu | SRTmumu |
|-----------------|--|--|-------------------------------------|
| ttbarW/Z | 0.58 ± 0.06 stat ± 0.25 sys | 1.2 ± 0.09 stat ± 0.53 sys | 0.64 ± 0.07 stat ± 0.28 sys |
| ttbarH | 0.05 ± 0.02 stat ± 0.01 sys | 0.12 ± 0.02 stat ± 0.02 sys | 0.03 ± 0.01 stat ± 0.01 sys |
| Dibosons | 0.27 ± 0.14 stat ± 0.07 sys | 0.38 ± 0.09 stat ± 0.1 sys | 0.19 ± 0.12 stat ± 0.04 sys |
| Fake/non-prompt | 0.87 ± 0.79 stat ± 0.61 sys | 2.92 ± 1.27 stat ± 2.04 sys | 0.34 ± 0.29 stat ± 0.24 sys |
| Q mis-Id | 2.66 ± 0.25 stat $-0.96, 1.04$ sys | 2.79 ± 0.26 stat $-0.92, 0.96$ sys | - |
| Other bkg | 0.01 ± 0.08 stat | 0.05 ± 0.08 stat ± 0.01 sys | 0.12 ± 0.11 stat ± 0.03 sys |
| Total bkg | 4.5 ± 0.8 stat $-1.2, 1.3$ sys | 7.5 ± 1.3 stat ± 2.5 sys | 1.3 ± 0.3 stat ± 0.4 sys |
| Data | 6 | 5 | 2 |
| p-value | 0.38 | 0.84 | 0.45 |

Download as

Visualize

Render as Cross Section Only?

Deselect variables or hide different error bars by clicking on them.

Variables

- SRTtee
- stat error
- sys error
- SRTTemu

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New submission system

The screenshot displays the HEPData submission system dashboard. At the top, there is a search bar for HEP Data and navigation links for Submit, Sandbox, Help, and admin. The dashboard title is "HEPdata Dashboard" with "Manage Profile" and "Log out" buttons. A sidebar on the left shows a "Filter submissions" section and a "Progress" summary:

- Not started: 0
- In progress: 0
- Ready for Release: 0
- Finished: 2

The main content area shows two submission cards, both marked as "Finished" with a checkmark and "Submission Complete" status. The first card is for the submission titled "Measurement Of The $Z\gamma$ Production Cross Section In Pp Collisions At 8 TeV And Search For Anomalous Triple Gauge Boson Couplings". The second card is for "Analysis Of Events With b -Jets And A Pair Of Leptons Of The Same Charge In pp Collisions At $\sqrt{s} = 8$ TeV With The ATLAS Detector". Each card lists roles (COORDINATOR, UPLOADER, REVIEWER) and their email addresses, along with submission dates.

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About | Submission Guidelines

ORCID IDs for authentication

Summary

- **HepData** is a unique *open-access* repository for **data** from experimental **High Energy Physics** papers. Much potential for widening scope to other fields.
- Experiments can now **upload their own data**. Around 120 self-uploads from LHC experiments so far. Need to encourage use also by non-LHC experiments.
- **Rapid progress** being made on new **HEPData** site in close collaboration with **Inspire** team at CERN.

<http://hepdata.cedar.ac.uk>


SOON

<http://hepdata.net>