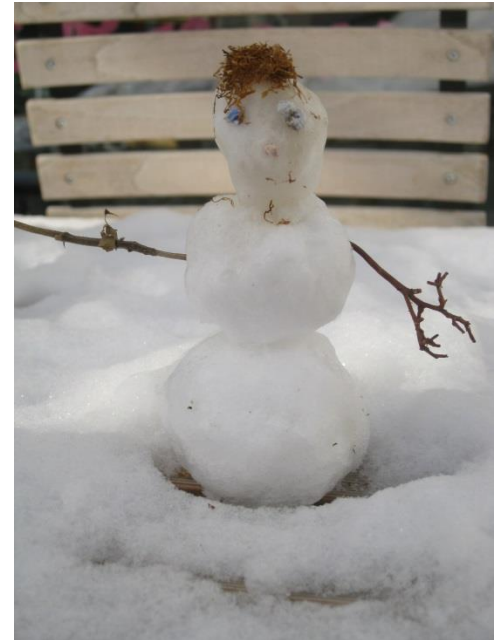# ROOT 2013
Saas-Fee Switzerland

Have Dessert First

- One of the best ROOT User Workshops I've attended. Likely due to the nice mix of old-timers and fresh faces.

- ROOT 6 is actually a big deal

- Clear push from those desiring new features but continued calls for backward compatibility

- Cries for improved documentation and updated tutorials (note move to DocBook)

ROOT State of the Union

- Moving away from CINT to Cling for v6.00
  - Despite cling being built on top of clang/llvm, ROOT will still compile with native compilers (clang will be internal lib) llvm also internal and hidden to avoid clashes with potential system installed llvm
  - Provides full C++11 support (templates & STL)
  - Release has been delayed until late this year
    due to trouble handling un/reloading code (editing macro)
  - Likely no windows support until v6.02 (six months later)
- Support for cloud storage
- iOS support now in public beta
    - Email cern-app@cern.ch if interested!
    - svn co http://root.cern.ch/svn/cern-app/trunk cern-app (requires xcode and iOS dev lic)
- ROOT now includes support for lzma compression
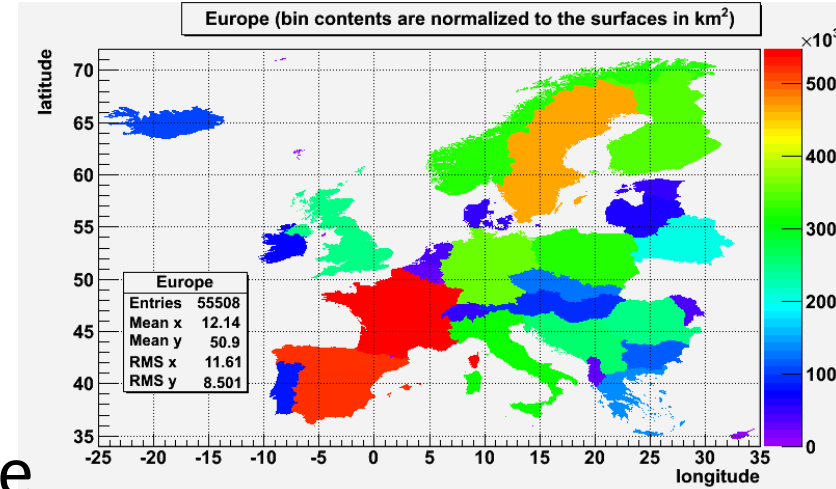- ROOT builds via CMake

Transitioning

- v5.34.x remains "long-term support" version
  - Due to need to give experiments time to transition, many features will be back-ported to v5.34 including the ability to read back v6 files
  - Technical snapshots of v6 will be provided to allow experiments to start their upgrade and provide feedback
  - For Fermi, one might envision upgrading Linux to v6 assuming v5.34 on Windows can handle reading v6 files.

New features

- JavaScript interface "Provide ROOT file access entirely w/i web browser"
- New class to provide multi-dimensional kd tree
- Improvements to RootFits and RootStats
- Move to native Mac OS graphics
- TH2Poly – bins of arbitrary shape
- Updated default graphics style based on customizations across many experiments
- µCernVM – VM appliance with ROOT install OS on demand

New Features contd.

TH2Poly – bins of arbitrary shape

TMathText – Updated LaTeX Engine

cling

- llvm compiler framework, clang: C++ front-end
- cling is a stand-alone interpreter
  Nice talk by Thomas Gahr about a non-ROOT use of cling providing a Qt interface:
  https://github.com/cptG/qling#readme
- Diagnostics!

  FixItHints.C:12:3: **error:** *use of undeclared identifier 'floot'; did you mean 'float'?*
   floot p;
   ^~~~
   float

  input_line_413:2:7: **error:** *member reference type 'TNamed *' is a pointer; maybe you meant to use '->'?*
  nPtr1.GetName();
  ~~~~~^
      ->

- Note: Dropping support for interchanging -> and .

Proof Talks

- Proof-lite

  - Utilize your multi-core machine!

- Proof cluster on a cloud via the Virtual Analysis Framework
http://indico.cern.ch/contributionDisplay.py?contribId=9&confId=217511

- # Proof On Demand PoD

  https://indico.cern.ch/getFile.py/access?contribId=43&resId=1&materialId=slides&confId=217511

- Tools to set up private proof cluster on any batch system such as: LSF, GridEngine, Condor, …
  if w/o batch system can use SSH plug-in and PoD is your batch system
  Simple interface
  See CHEP Video:
  https://indico.cern.ch/getFile.py/access?contribId=22&sessionId=4&resId=0&materialId=0&confId=149557

- # Great motivational talk about git

  https://indico.cern.ch/getFile.py/access?contribId=24&resId=0&materialId=slides&confId=217511

Anar Manafov
thanking Fons

pyRoot

- Updating to take advantage of cling and PyPy
  work to be done to improve performance
- rootpy See: http://rootpy.org/intro.pdf
  - A more "pythonic layer" for pyRoot
  - Provides interfaces to other scientific python modules
  - Created a set of subclasses of the ROOT classes, dropping the "T"
  - root_numpy package to provide fast conversion of ROOT TTree to
    NumPy arrays as well as fill histograms with NumPy arrays
- Can be installed using pip
  or obtain through
  git clone git://github.com/rootpy/rootpy.git   and do
  cd rootpy
- python setup.py install --user

XRootD updates

- New ROOT IO plugin available with 3.3.0
  - Old plugin remains available 2 years after 4.0.0 release
    - For testing purposes selection can be done:
      - by changing the file URL (ie. **root://** to **rootng://**) or
      - setting the **XRD_CLIENT** environment variable or
      - setting a variable in a **.rootrc** file or
      - using **gEnv**

LHCb User Poll

- https://indico.cern.ch/getFile.py/access?contribId=18&resId=0&materialId=slides&confId=217511

- Interesting findings..including over half of the respondents indicating they primarily ran ROOT from their laptop/desktop even for intensive tasks.