PostGIS 2.0

PostGIS

Spatial PostgreSQL

Released in **April 2012**
   after 26 months of development!

Fast! Solid!
   tremendous work by all

Outstanding Documentation
   note Chapter 13 for 2.0 diffs

OSGeo Project

Installation & Requirements

PostGIS 2.0

Required Libraries

GEOS – C++ port of the Java Topology Suite
PROJ4 – projection library
LibXML2 – for GML support, etc
GDAL – for raster support

PostgreSQL 8.4 for PostGIS 2.0
PostgreSQL 9.0+ for PostGIS 2.1

http://postgis.refractions.net/documentation/manual-2.0/postgis_installation.html

Arch: x86_64 / AMD64 PPC armv61 Sparc64 x86 i686 i386
OS: OSX Linux BSD Solaris HP-UX AIX Windows7 WindowsXP WindowsServer

Installation & Requirements

PostGIS 2.0

Create Extension

CREATE EXTENSION postgis;
CREATE EXTENSION postgis_topology;

PostgreSQL 9.1+

http://postgis.refractions.net/documentation/manual-2.0/postgis_installation.html

Things You May Need to Know

- **The binary format of data has changed.** You *must* dump PostGIS 1.5 databases and then reload. However, most common loading methods handle the binary conversion for you

  ```
  pg_dump my_15_db -t table1 -t table2 | psql -q new_20_db
  ```

- **geometry_columns** is now a VIEW

- **What is GDAL ?!** It was decided to include raster support by default. PostGIS Raster requires GDAL, a general purpose raster manipulation and interchange library plus tool suite. So you will get GDAL when you install PostGIS 2.0. *see* www.gdal.org

- You cannot make a PostGIS 1.5 database in PostgreSQL 9.2

    version 1.5 is being maintained – *send feedback to the steering committee*

- For Ubuntu, we use UBUNTUGIS-UNSTABLE to build OSGeo LIVE.

    (not as unstable as it sounds)

KNN

Indexed Nearest Neighbour Search in PostGIS
September 28th, 2011

An always popular question on the PostGIS users mailing list has been
  "**how do I find the N nearest things to this point?**".
…
PostgreSQL has the ability to return ordered information where an index exists, but the ability has been restricted to B-Tree indexes until recently. Thanks to one of our clients, we were able to directly fund PostgreSQL developers **Oleg Bartunov** and **Teodor Sigaev** in adding the ability to return sorted results from a **GiST index**. And since PostGIS indexes use GiST, that means that now we can also return sorted results from our indexes. Which is a very long way of saying that PostGIS (the development code in the source repository) now has the ability to do index-assisted nearest neighbour searching.

This feature (the PostGIS side of it) was funded by Vizzuality, and hopefully it comes in useful in their CartoDB work.

   requires: PostgreSQL 9.1 and PostGIS 2.0
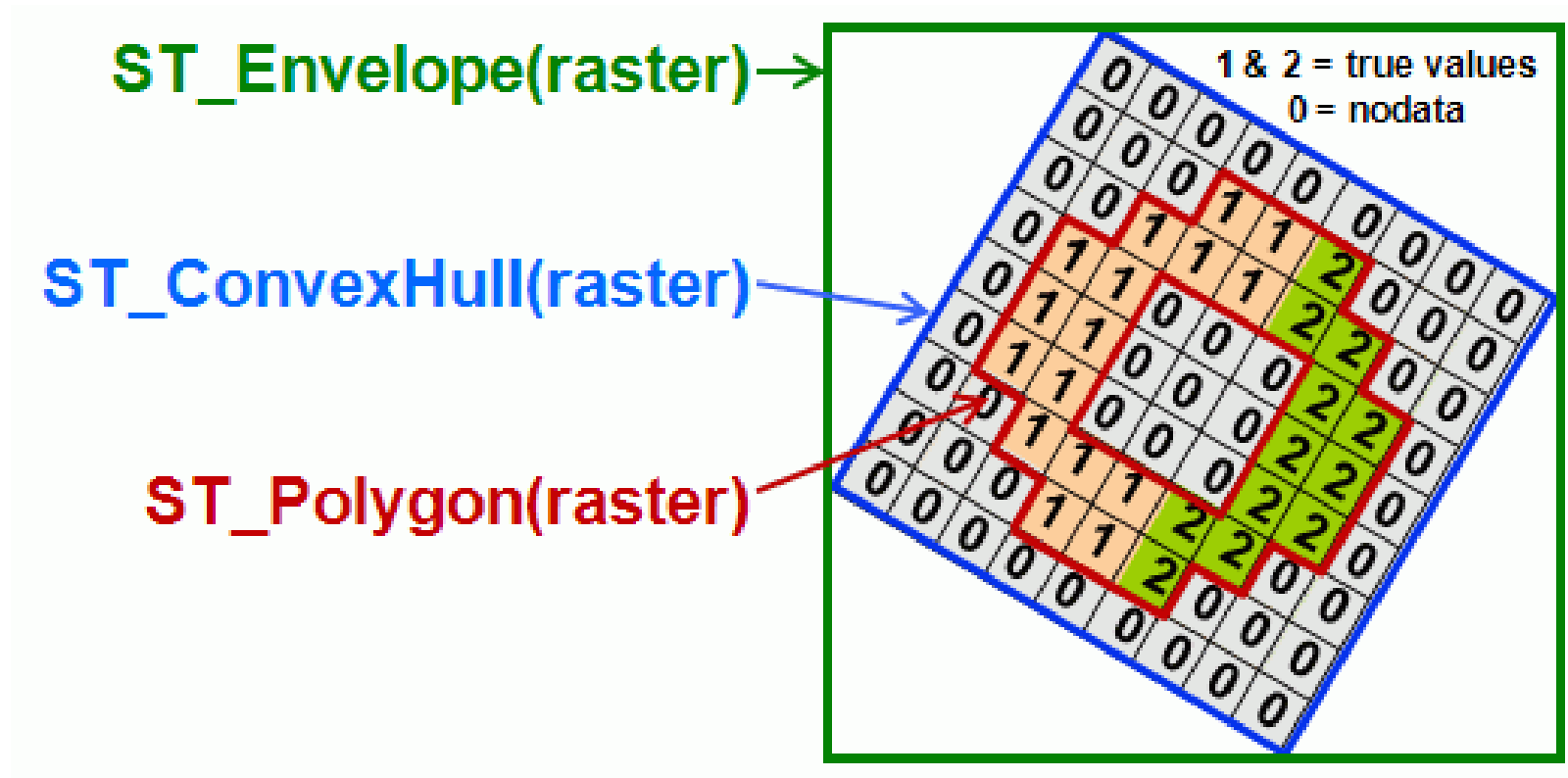
Paul Ramsey, OpenGeo Blog

KNN

- http://blog.light42.com/wordpress/?p=897

- http://blog.light42.com/wordpress/?p=102

Topology

- http://postgis.refractions.net/docs/Topology.html

- http://blog.light42.com/wordpress/?p=209

- http://blog.light42.com/wordpress/?p=484

Tools

- ST_Snap()
- ST_Split()
- ST_SharedPaths()
- ST_UnaryUnion()

...

- **ST_MakeValid()**

http://blog.light42.com/wordpress/?p=869

PostGIS Raster

Slides by "dustymugs"
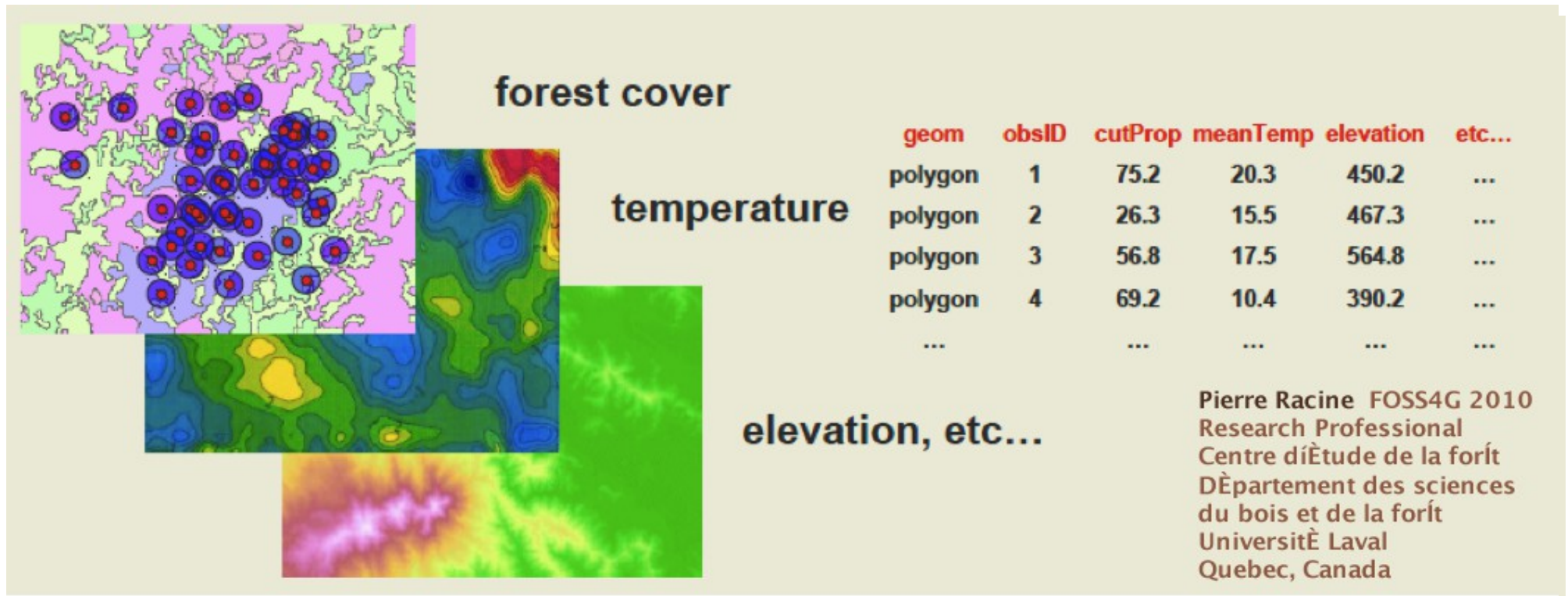
PostGIS Raster

Import and Export in Straightforward Ways

- Each tile/raster is Georeferenced
  - Support for rotation (or skew)
- Multiband
  - Support for band with different pixeltypes in the same raster
    1BB, 8BSI, 8BUI, 16BSI, 16BUI, 32BSI, 32BUI, 32BF, 64BF
  - Full supports for NODATA values (one per band)
  - No real limit on number of bands
- Tiled
  - No real distinction between a tile and a raster
  - No real limit on size
    1 GB per tile, 32 TB per coverage (table)
    Rasters are compressed (by PostgreSQL)
  - Support for non-rectangular tiled coverage

e.g. SRTM Coverage for Canada

Pierre Racine FOSS4G 2010
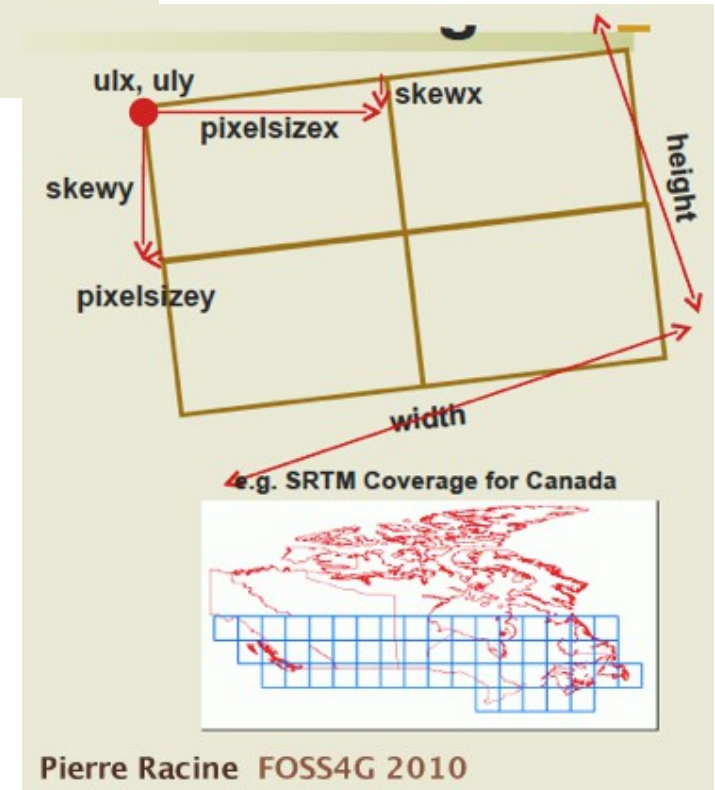
More Resources

- **OpenGeo** – Intro to PostGIS

  http://workshops.opengeo.org/postgis-intro/index.html

- **BostonGIS dot com**

- **trac.osgeo.org/postgis/wiki/WKTRaster**

- *the fine online manual, wiki, mailing lists*

  and don't forget, the source code