Overview of Free and Open Source Tools-I

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About me

- Ph.D. (Computer Aided Design) IIT Roorkee
- M.Tech (Structural Engineering) TIET, Patiala
- B.Tech (Civil Engineering) TIET, Patiala

- Employed as Professor of Civil Engineering at GNDEC, Ludhiana (Pb)
- Dean Testing and Consultancy
- Working with FOSS since 1997
- Working with computers since 1984
- Associated with many LUGs
- Formed rkLUG

- Active contributor to OpenStreetMap
- One of the two mentors of GSoC project “Fast track deployment of customised OSM Tile Sever”
- OpenStreetMap Foundation granted SotM Scholarship to present "State of the Punjab” at 3rd International Conference held at Netherlands during 2009

- One of the Chairpersons of Education and Training Committee of Indian Chapter of OSGeo

Computer User

- Hardware
- Software
  - → OS
  - → Application software
    - Web browser

- Write article / essay / letter
- Take screen shots
- File manager
- Illustrator
- Preparing drawings
- Image editing
- Scanning

→ Specialised Software

- Specific to one's domain

- Cost of Hardware and Software

Usage of GIS

Managing various:

- natural resources
- man-made resources

GIS is every where, used by all

Geo-spatial Data

- Government agencies
- Companies
- Community generated

Most maps you think of as free actually have legal or technical restrictions on their use, holding back people from using them in creative, productive, or unexpected ways.

OpenStreetMap

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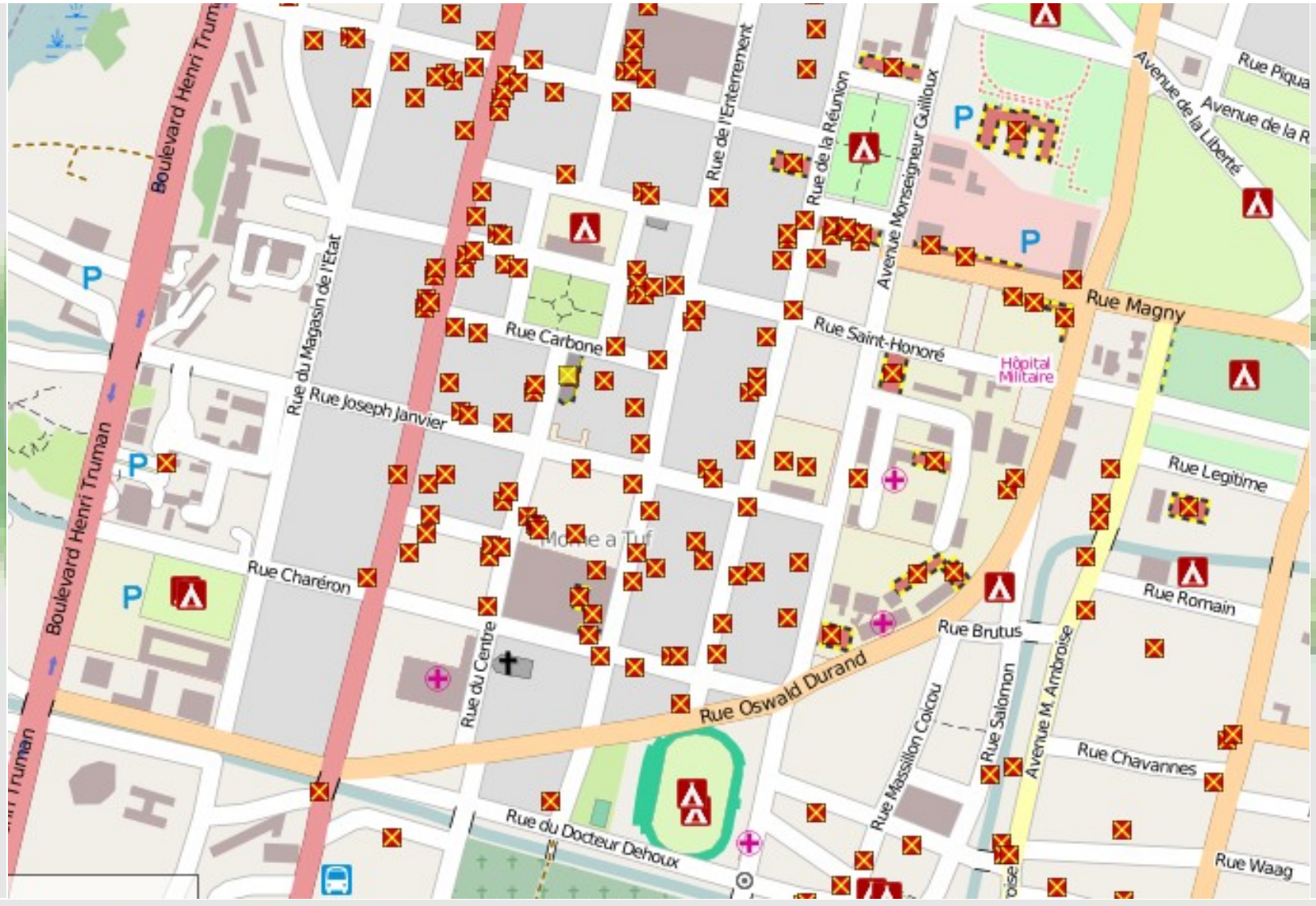
OpenStreetMap creates and provides free geographic data such as street maps to anyone who wants them.



1: Damaged building: Haiti EQ

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2: OSM map on GPS

Thanks to OSM

"Many thanks Freddy. Very timely maps of Haiti that sent me to the Garmin. I went down and installed OSM maps to the GPS in our search and rescue teams. OSM undoubtedly be a great help to our response teams, especially those going to move to rural areas." Colombian search and rescue operators

http://www.inveneo.org/?q=haiti-wifi-network

We've been given coordinates that are miles off the actual location, a real issue when street signs are missing, landmarks are destroyed and the city has a dusk curfew.

"This is where OpenStreetMap is a godsend" in How to Deploy Long-Distance WiFi in Haiti (2010-02-10) by

Inveneo, a NGO whose mission is connecting those who need it most, on how they were able to bring high-speed Internet access - critical communication capacity - to eleven relief agency locations with minimal equipment and installation time.

Best of OSM

http://bestofosm.org/

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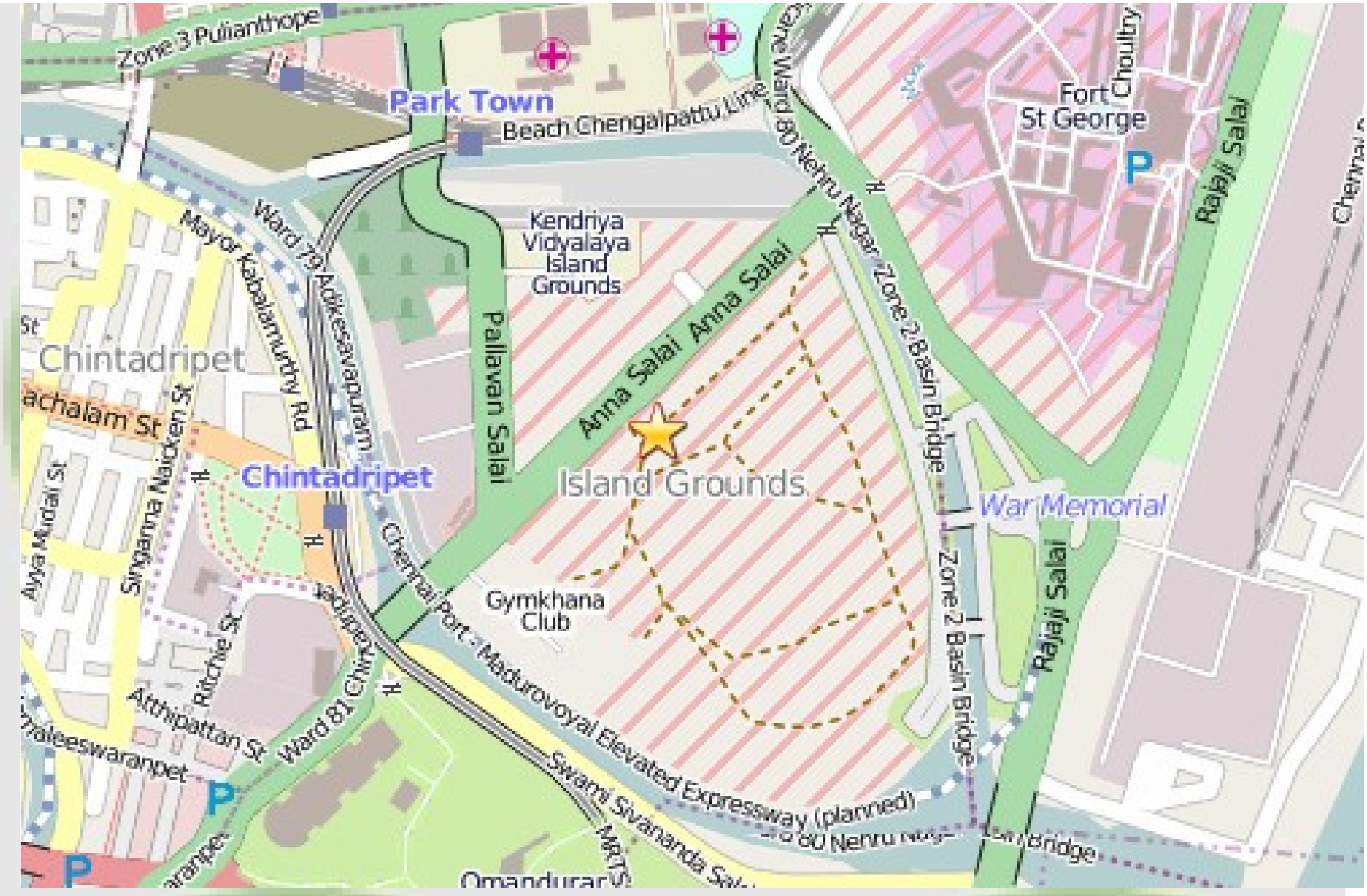

3: Chennai

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4: Cubbon Park - Bangalore

5: Coimbatore Golfcourse

Golf Course Road
2nd
6th
9th
8th
10th
11th
18th
16th
3rd
Coimbatore
Golf
Course

Software

- OSGeo: 2005 The Mapserver Foundation, Feb 2006 The Open Source Geospatial Foundation
- OS Geo India: Jan 2007

OSGeo's Software

Graduated

1. GDAL/OGR
2. GRASS GIS
3. Mapbender

4. MapGuide
5. GeoTools
6. MapServer
7. OSSIM
8. deegree
9. geomajas
10. OpenLayers

11. Quantum GIS
12. FDO

In Incubator

1. GeoServer
2. MapFish
3. gvSIG

4. GEOS
5. MetaCRS
6. PostGIS

Others

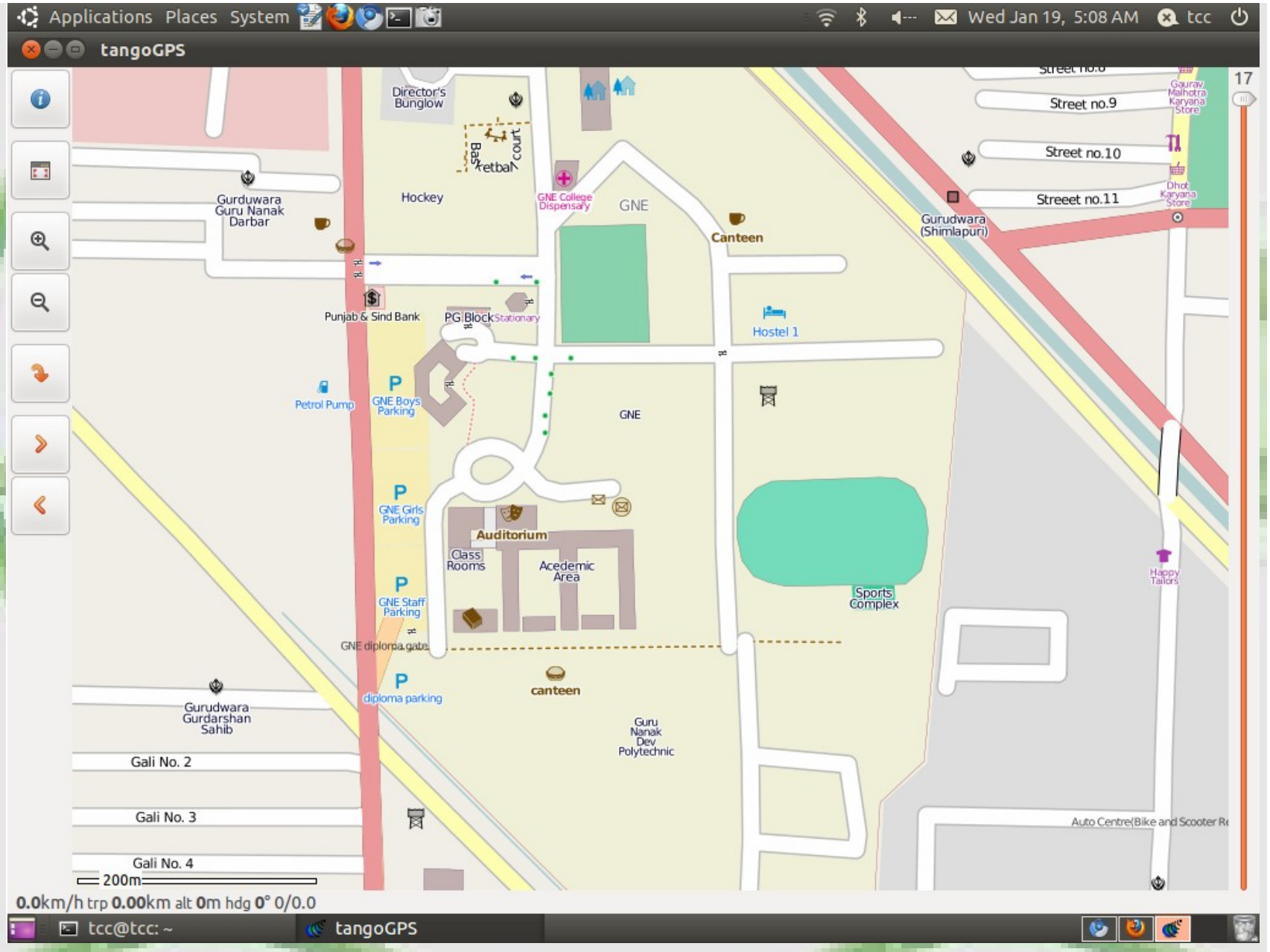
1. TangoGPS / FoxtrotGPS
2. SagaGIS
3. Viking
4. GPS Drive
5. QlandkarteGT

6. GPSCorrelate
7. Navit
8. GPSPrune
9. GPXViewer
10. GeoTranz
11. GpsMid

FoxtrotFGPS

- Mapping application for use with or without GPS
- Works on an Linux powered device
- Map data from the Openstreetmap, other repositories can be added
- http://www.foxtrotgps.org/

7: TangoGPS on mobile phone



8: TangoGPS on Laptop

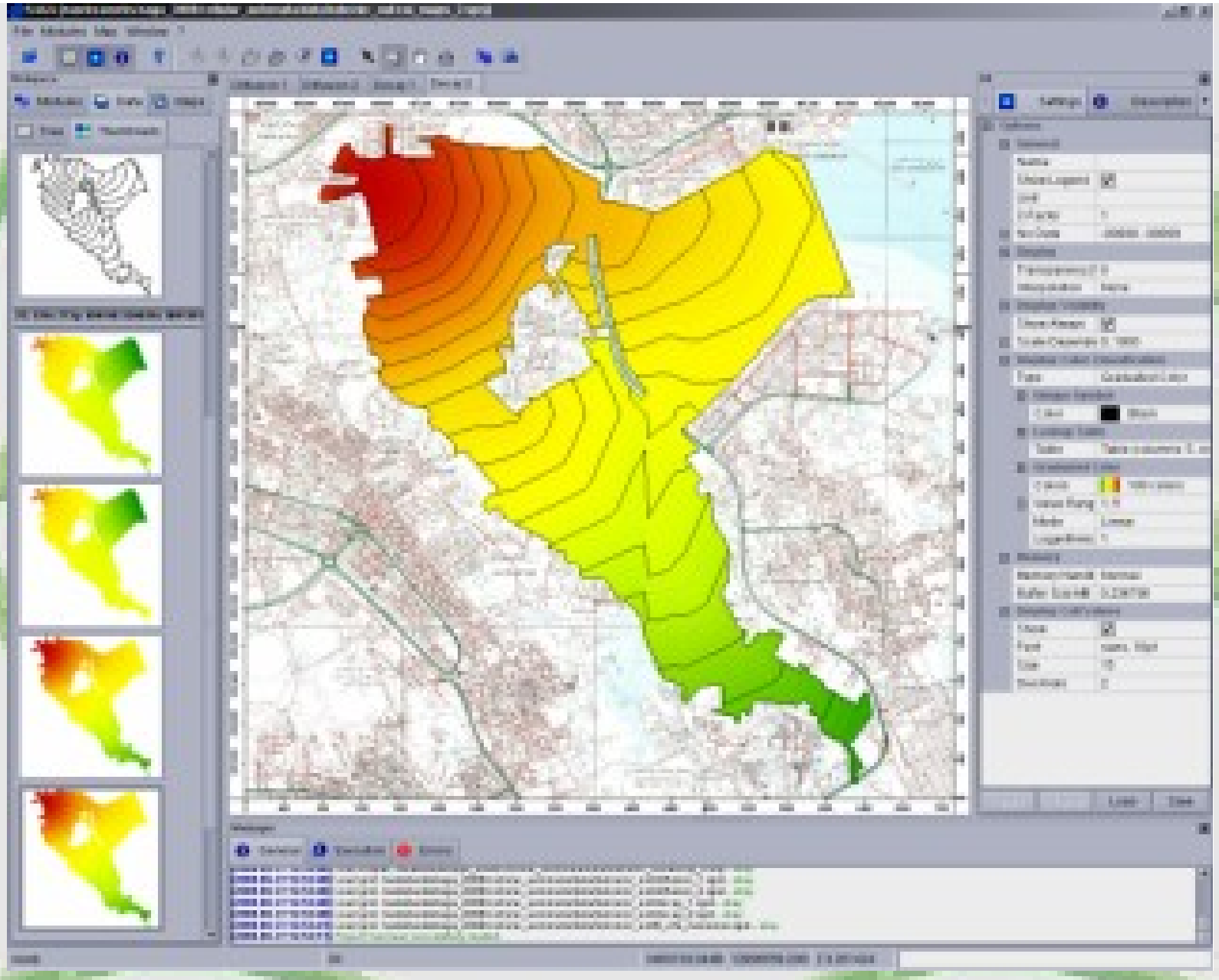
- The maps are automatically downloaded and cached for offline use while you drag or zoom the map.
- If connected to a GPS your current position and track are shown on the map and you can log positional data for further processing.
- Support for Zephyr HxM heart rate monitors

- Logging of your heart rate, fully synchronised with the GPS track
- Geocoded images can be shown with the correct position on the map and you can mark your favourite locations and any points of interest on the map.
- Find friends, you can exchange your position with them.

SAGA

- System for Automated Geoscientific Analyses
- GIS software
- Designed for an easy and effective implementation of spatial algorithms

- Offers a comprehensive, growing set of geoscientific methods
- Provides an easily approachable user interface with many visualisation options
- Runs under Windows and Linux operating systems



9: SAGA in action on Linux

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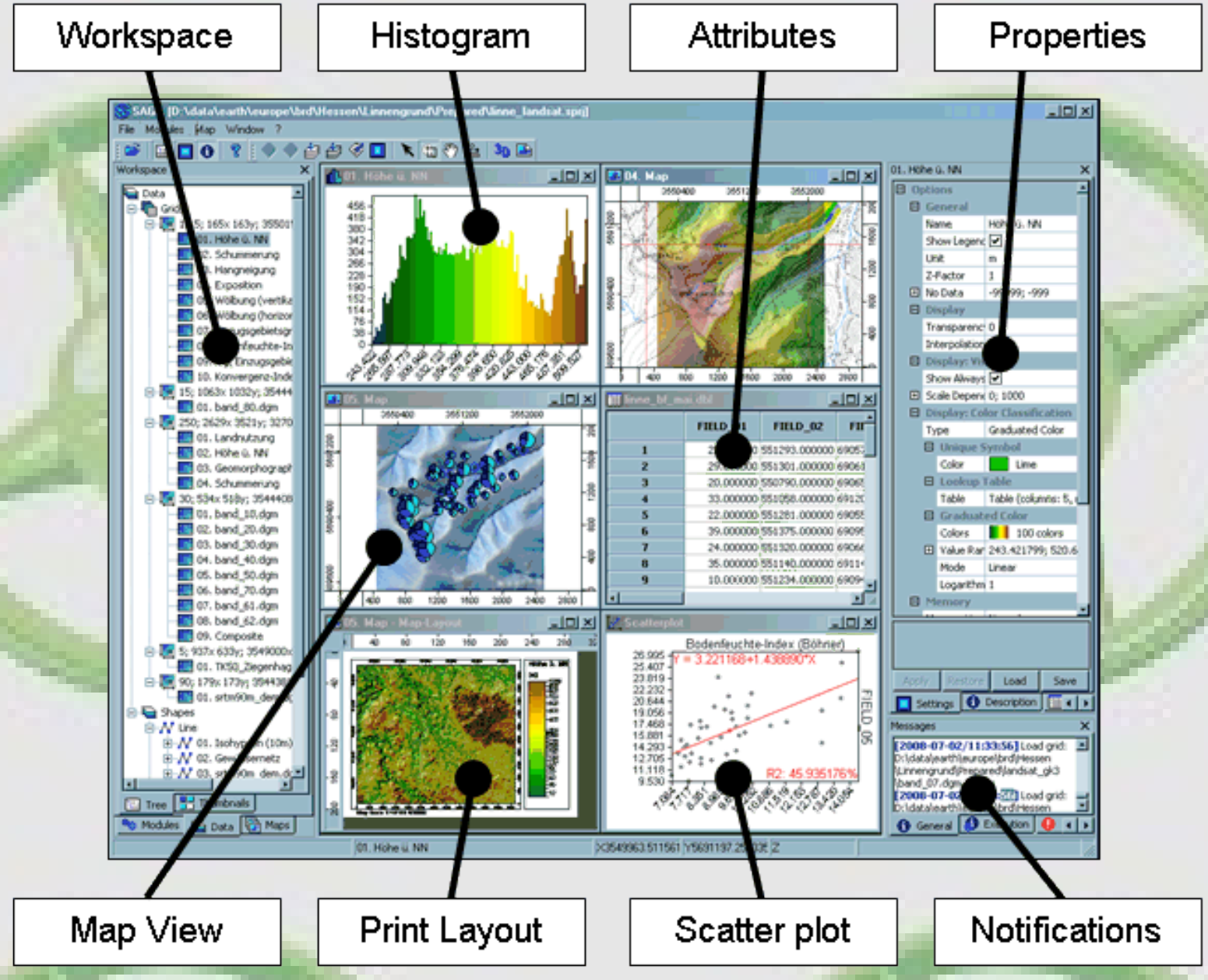

10: GUI of SAGA

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- Simulation
  - → Cellular Automata
  - → Modelling the Human Impact on Nature
  - → Fire Spreading Analysis
  - → Hydrology

- Terrain Analysis
  - → Channels
  - → Compound Analyses
  - → Hydrology
  - → Lighting, Visibility
  - → Morphometry
  - → Profiles

Automation of complex work flows and the routine processing of mass data through scripting.

Go to Part-II of this presentation …

Thanks

Suggestions / Questions /
Comments at: hsrai@gndec.ac.in