Tools for Risk and Vulnerability Assessment

Dr. Mahesh Rajasekar

Taru Leading Edge

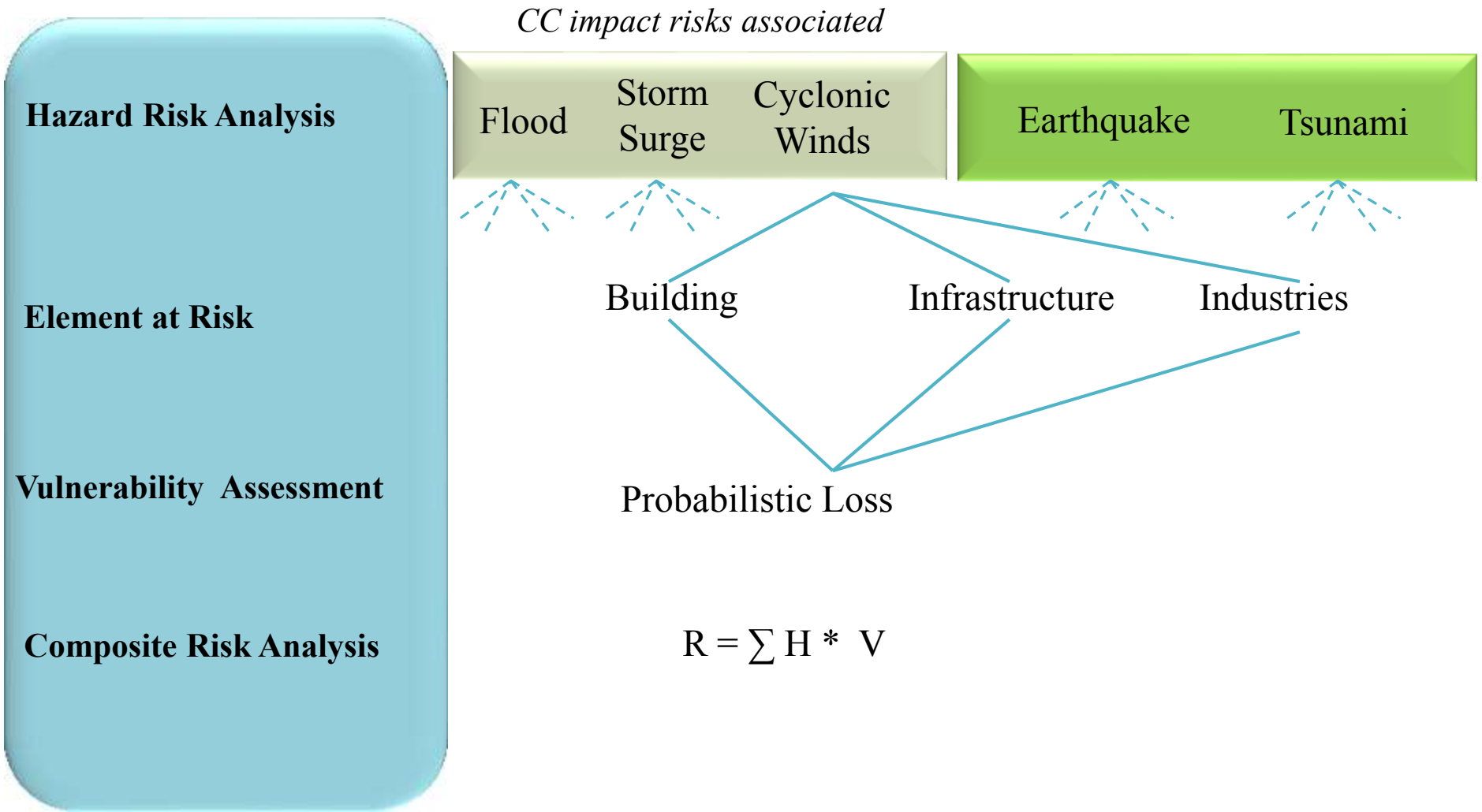
Building climate resilient cities

Exploring theories, practices and prospects

16th February 2015

TARU

Framework: Hazard and vulnerability



Climate variability and change

Change in extreme weather events

Change in precipitation (total annual)

Change in temperature (seasonal change)

Change in storm intensity and frequency (cyclones, winds, snow, etc)

Change in sea level

Possible Impact

Population affected including loss of life

Infrastructure damage

Lifestyle change

Livelihood

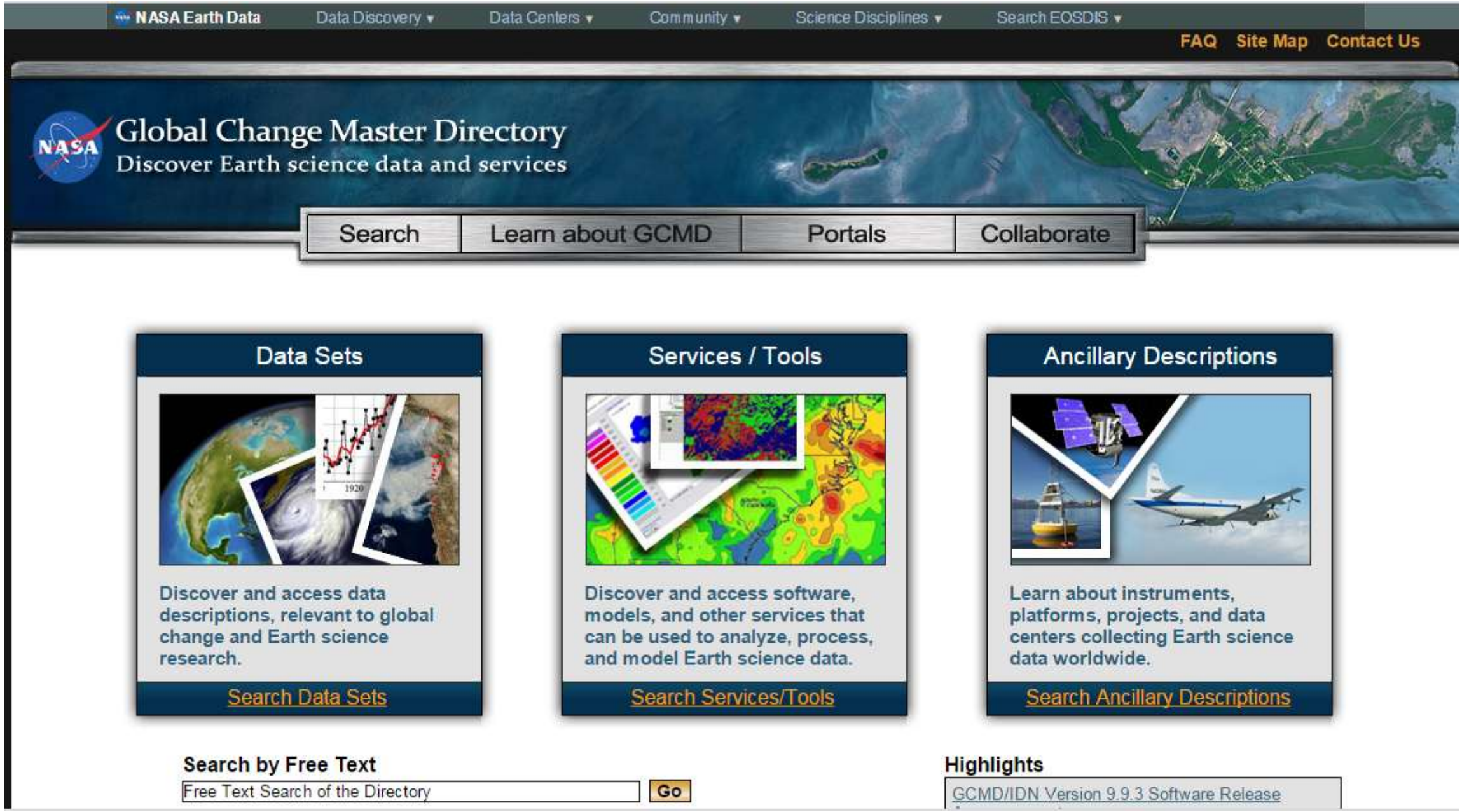
Economy

Social cohesion

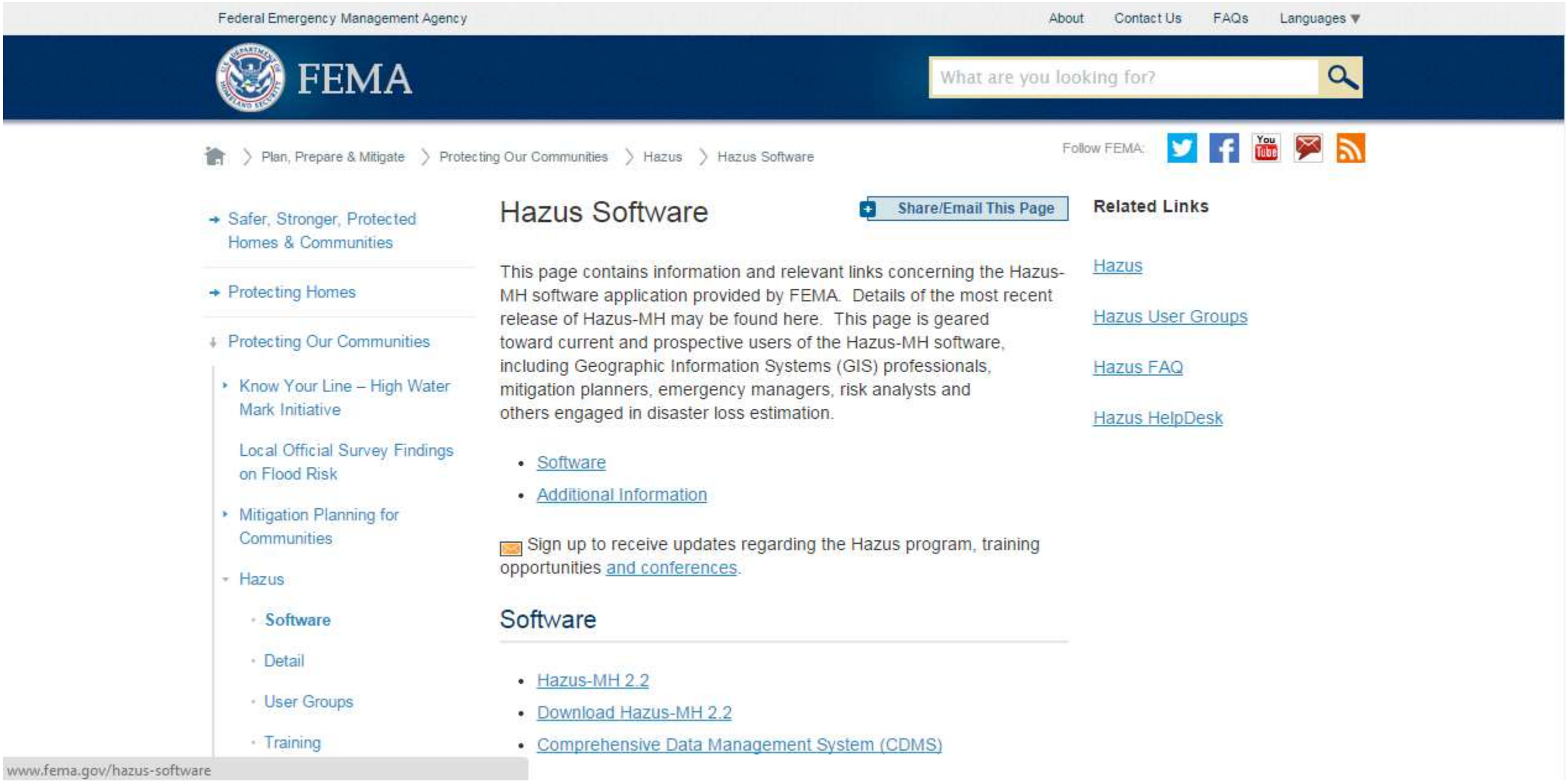
Access to services

Health outcomes

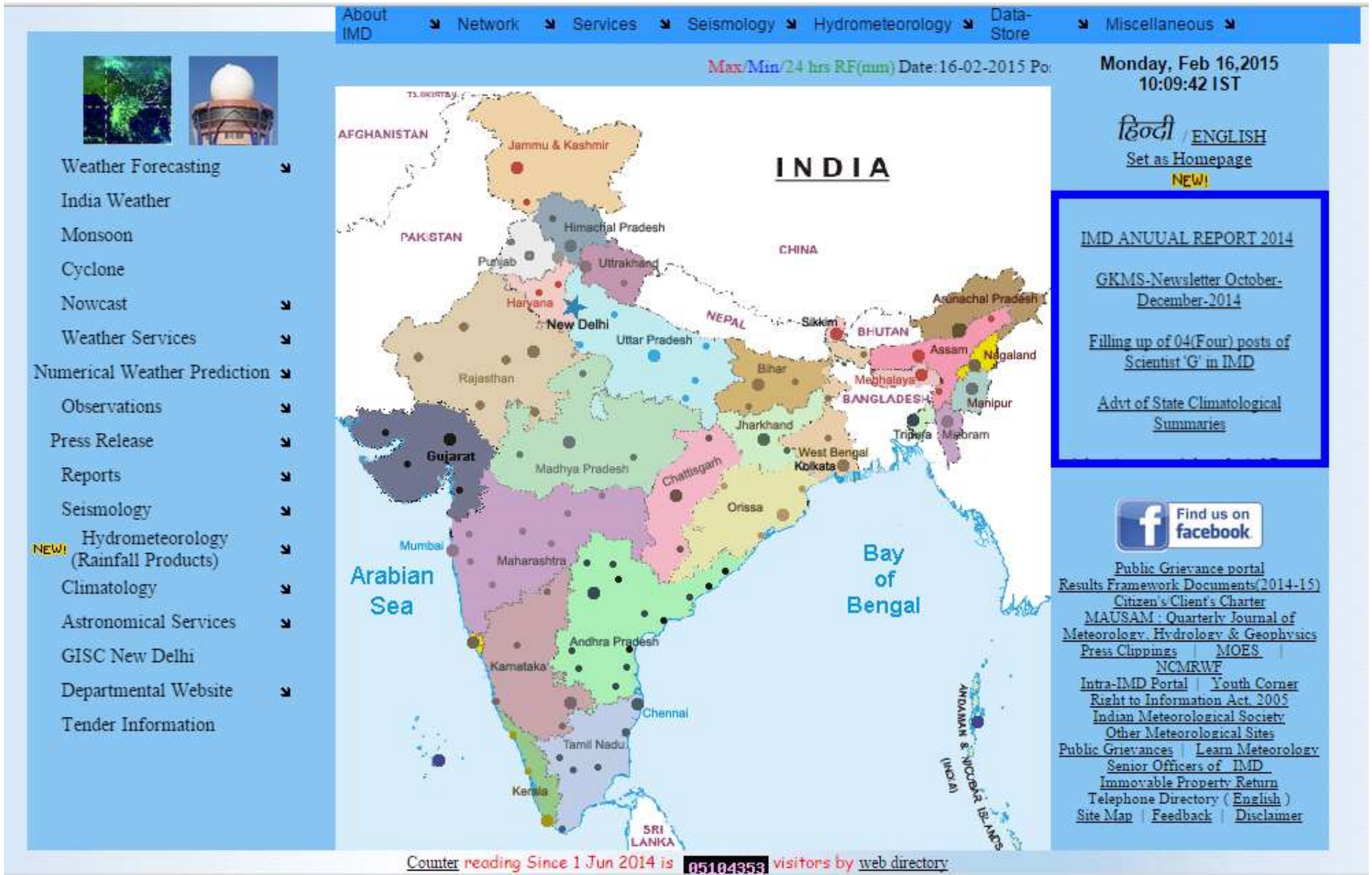
NASA Data server and Tools: http://gcmd.nasa.gov/



http://www.fema.gov/hazus-software



http://www.imd.gov.in/

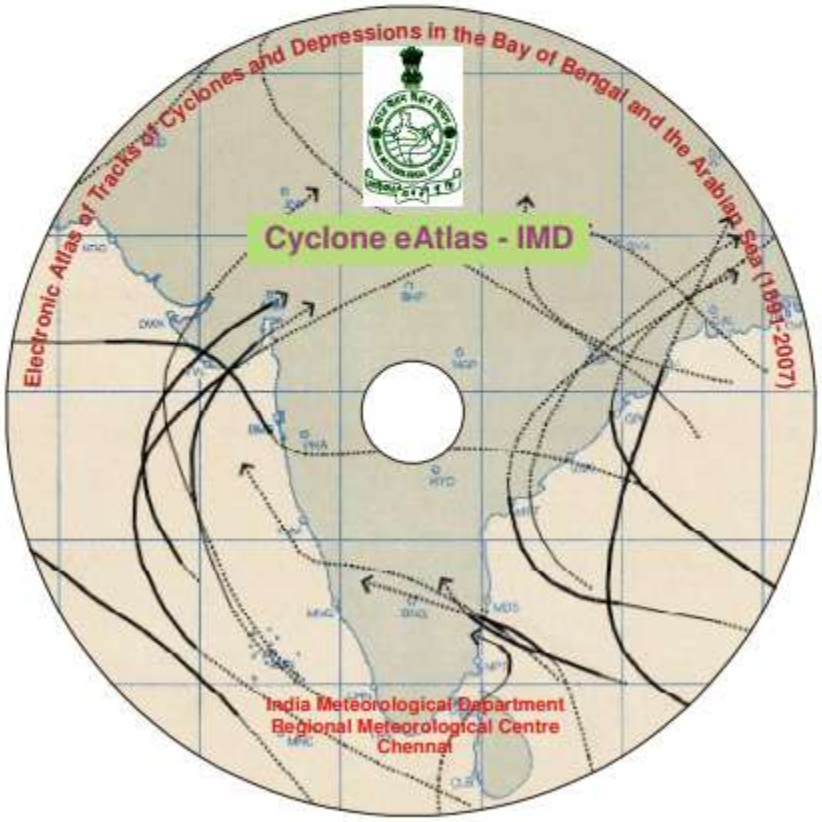


IMD Data Products for download / purchase

Tracks of Cyclones and Depressions in the Bay of Bengal and the Arabian Sea 1891-2007

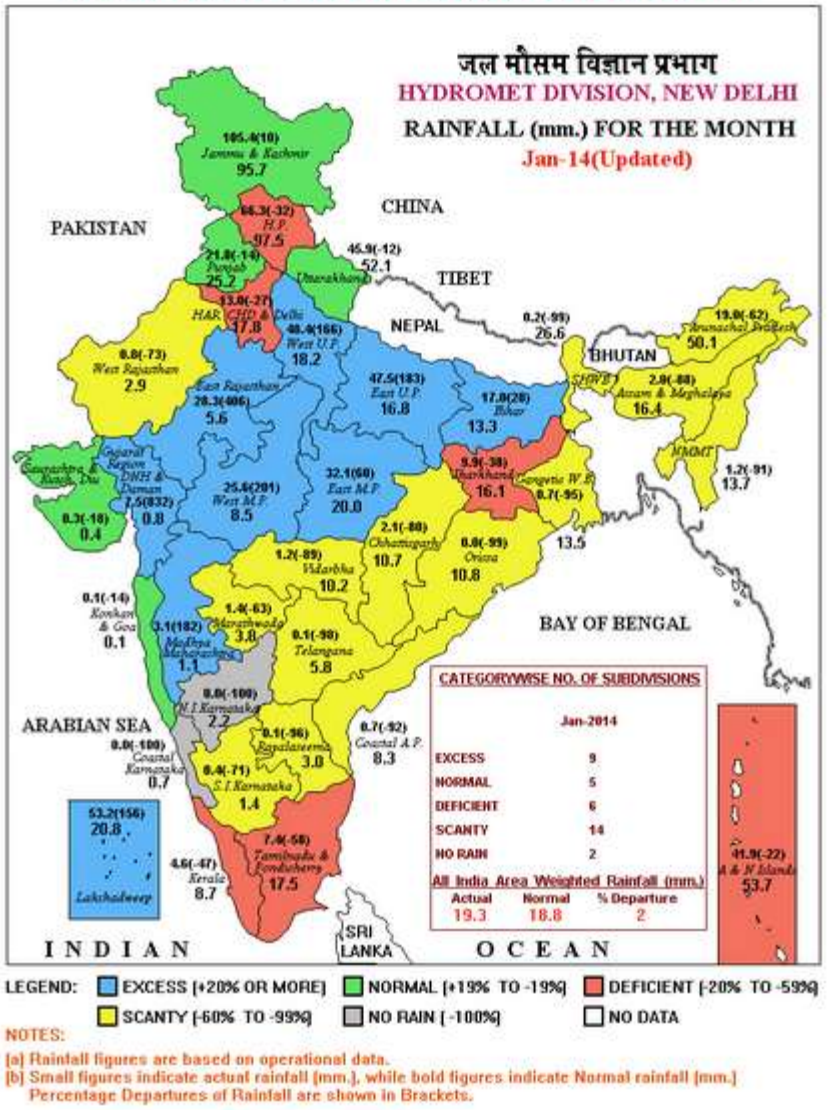
Electronic version, June 2008

Cyclone eAtlas – IMD

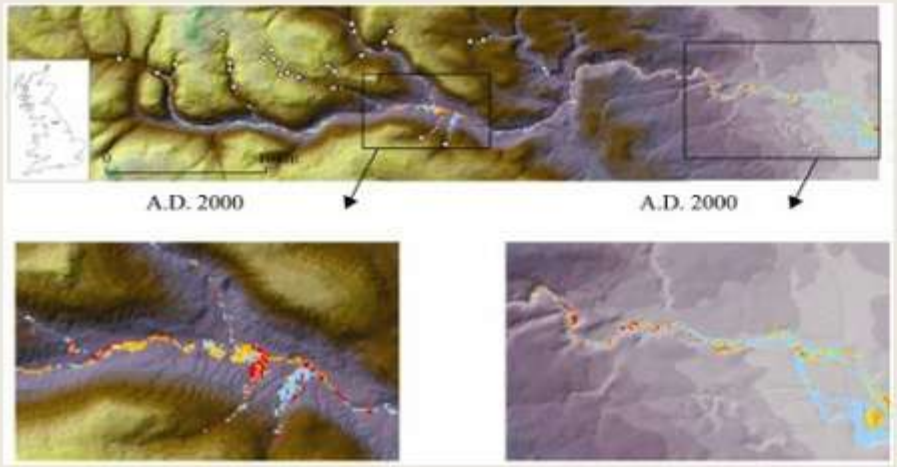


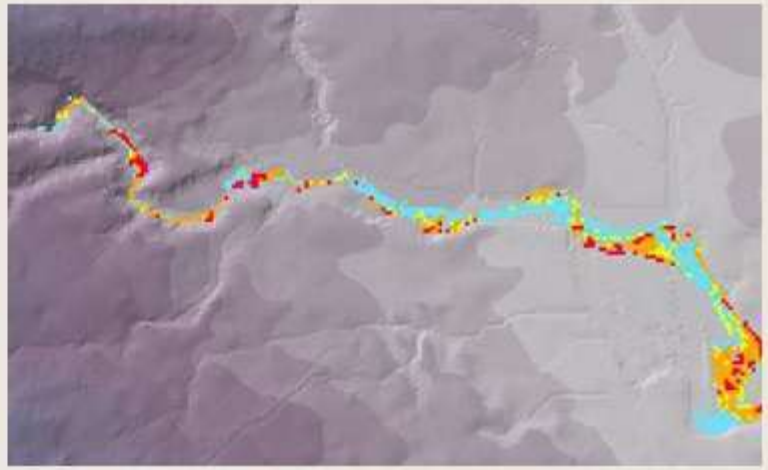
भारत मौसम विज्ञान विभाग

INDIA METEOROLOGICAL DEPARTMENT

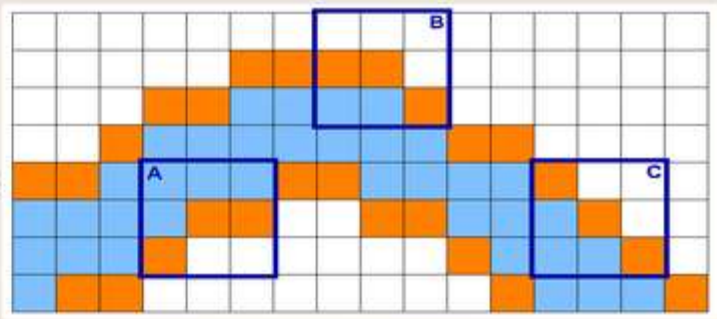


http://www.coulthard.org.uk/CAESAR.html





Though initial applications of CAESAR were modelling river catchments - it became clear that the basic CAESAR model had the capability to simulate erosion and deposition over river reaches. This led to the development of 'reach mode' whereby water could be input at a point within the model (e.g. at the top of a reach) and erosion and deposition on a more detailed DEM of a reach could be simulated. In addition, catchments and reaches can be linked - so output from a coarser scale river catchment model can be fed directly into another higher resolution CAESAR model of a reach.



Technical developments in CAESAR have continued, with the recent addition of lateral erosion - allowing the channel to meander. This is carried out using a novel edge counting algorithm that counts the number of wet and dry cells next to a river bank and then uses this to calculate whether it is on the inside or outside of a bend.

Other developments from 2005 onwards included the addition of suspended sediment, how shear stress is calculated as well as how slope processes are determined. Recent work by Welsh et al., (in press) also relates the rate of slope processes within CAESAR to the hydrological model - so during wetter periods landslips and soil erosion increase.

Regional Climate Change Modeling Results: http://cccr.tropmet.res.in/cordex/files/downloads.jsp

HOME CORDEX MODELS WORKSHOP ANNOUNCEMENT GALLERY LAS DOWNLOADS PUBLICATIONS CONTACT

CORDEX-South Asia Multi Models Output

Historical (1950 - 2005) | Evaluation Run (1989 - 2008) | RCP 4.5 | RCP 8.5

Historical runs is available to download.

CCCR FTP Server, CCCR-ESG Node and Website is under maintenance till today evening. NEW

Experiment Name	Rain fall (pr)	Surface Air Temp (tas)	Surface Air Temp. Maximum (tasmax)	Surface Air Temp. Minimum (tasmin)	Sea-level Pressure (psl)	Surface Specific Humidity (huss)	Surface Zonal Wind (uas)	Surface Meridonial Wind (vas)	Downward Shortwave Radiation (rsds)
RCA4 (ICHEC)	✓	✓	✓	✓	✓	✓	✓	✓	--
RegCM4 (GFDL)	✓	✓	✓	✓	✓	✓	✓	✓	✓
RegCM4 (LMDZ)	✓	✓	✓	✓	✓	✓	✓	✓	✓
CCLM4 (MPI)	✓	✓	--	--	✓	✓	--	--	--
LMDZ4 (IPSL)	✓	✓	✓	✓	✓	✓	✓	✓	--
REMO2009 (MPI)	✓	✓	✓	✓	✓	✓	✓	✓	✓
CCAM (ACCESS)	✓	--	✓	✓	✓	--	--	--	--
CCAM (CNRM)	✓	--	✓	✓	✓	--	--	--	--
CCAM (CCSM)	✓	--	✓	✓	✓	--	--	--	--
CCAM (GFDL)	✓	--	✓	✓	✓	--	--	--	--
CCAM (MPI)	✓	--	✓	✓	✓	--	--	--	--
CCAM (BCCR)	✓	--	✓	✓	✓	--	--	--	--

dex/files/downloads.jsp

MODIS Fire product: https://earthdata.nasa.gov/data/near-real-time-data/firms/active-fire-data

Near Real-Time Data

Land Atmosphere Near Real-time Capability for EOS

Near Real-Time Data

- Data
- Visualization
- FIRMS
  - Web Fire Mapper
  - MODIS Global Fire Maps
  - Fire Email Alerts
  - **Active Fire Data**
  - About
  - Background
  - Publications
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  - Support

Home » Data » Near Real-Time Data » FIRMS

Active Fire Data

Download MODIS active fire data for the last 24, 48 hours and 7 days in shapefile, KML, WMS or text file formats.

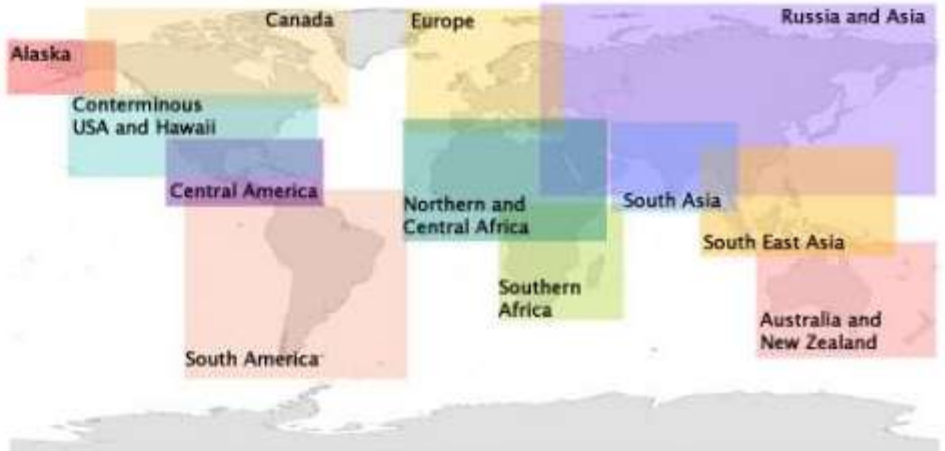
For data older than the last 7 days, use the Archive Download Tool to extract fire locations; the tool provides near real-time (NRT) data and, as it becomes available, it is replaced with the standard MCD14ML fire product.

SHP | KML | WMS | TXT | Archive Download Tool | Global Fire Maps

SHP

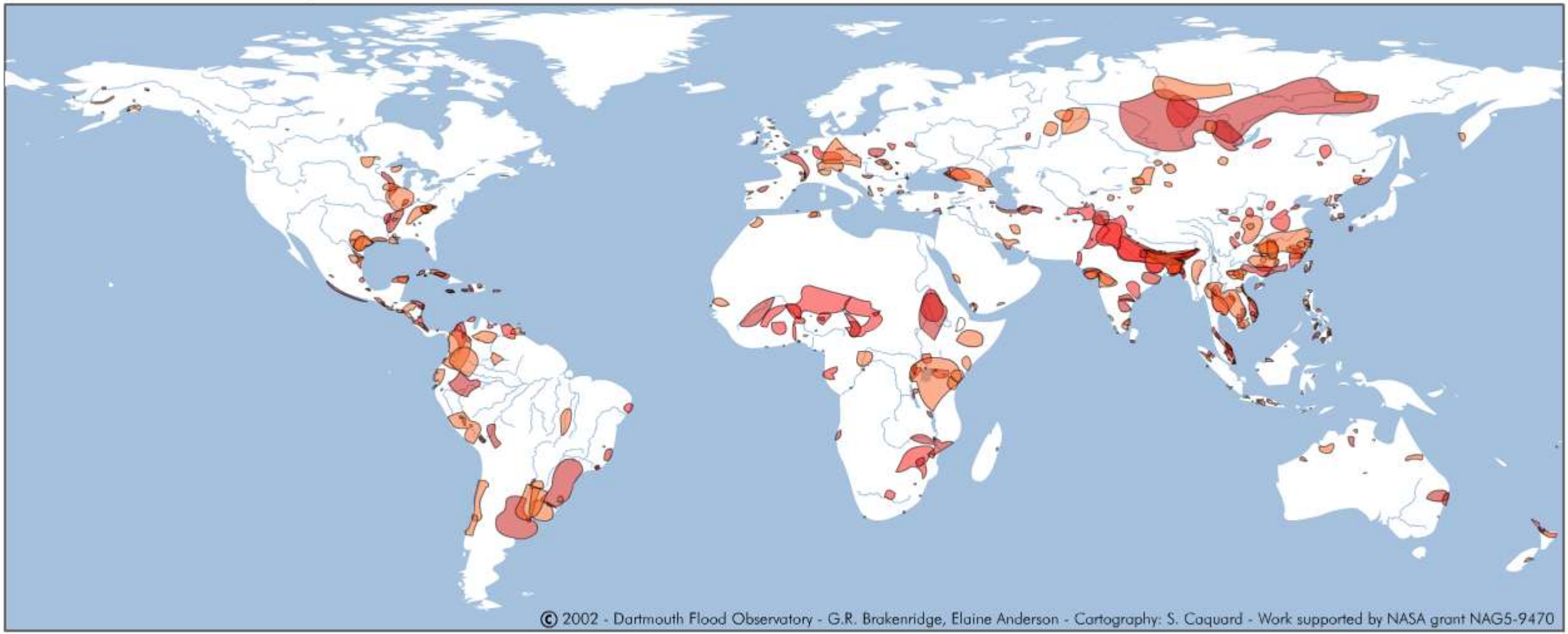
Download shape files of MODIS active fire data for the last 24 and 48 hours, and 7 days. For more information, please see the SHP README (PDF).

For data older than 7 days, use the Archive Download Tool.



http://www.dartmouth.edu/~floods/Archives/GlobalArchiveMap.html

Global Archive Map of Extreme Flood Events since 1985

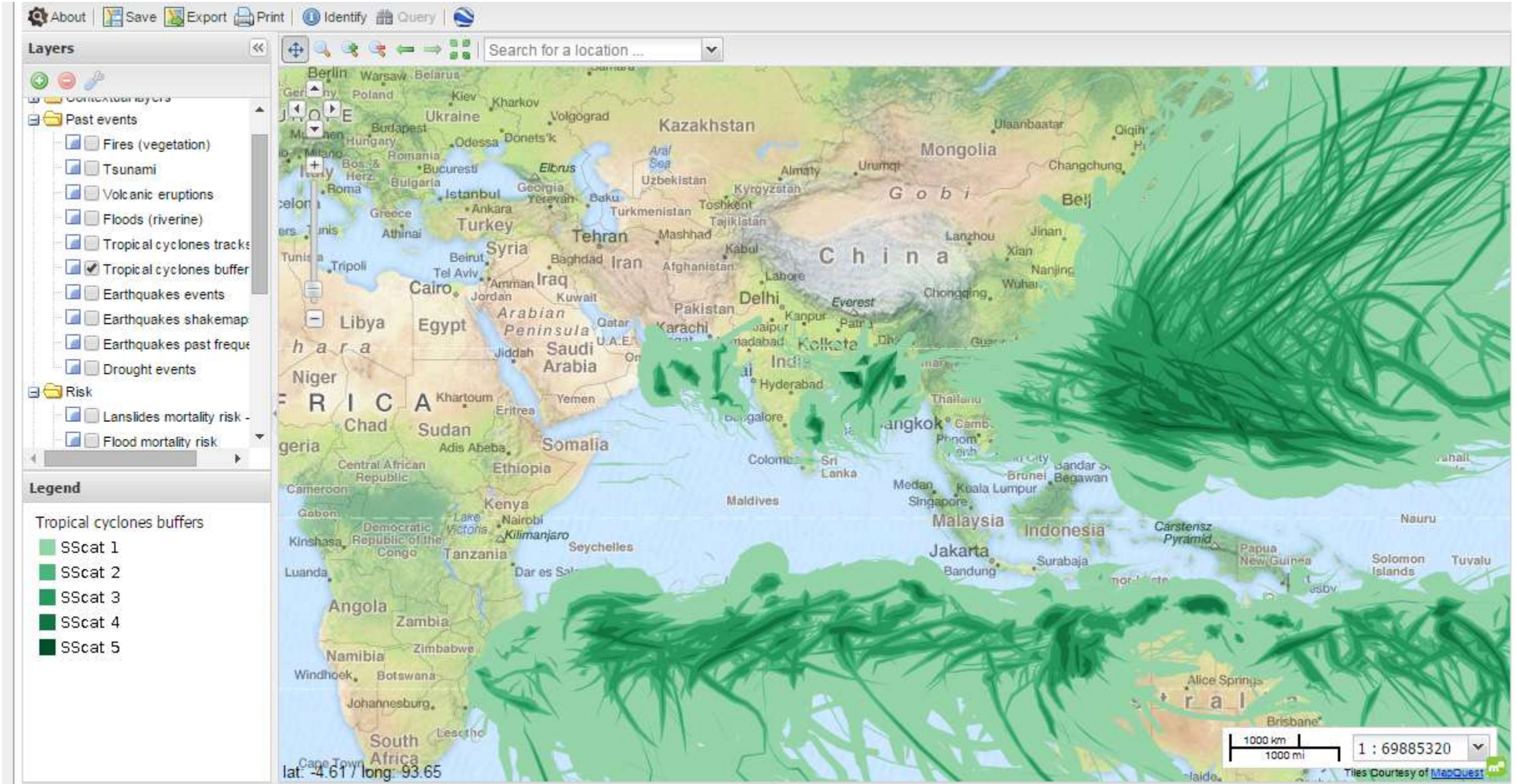


To Show or hide the flood events: Click on the boxes

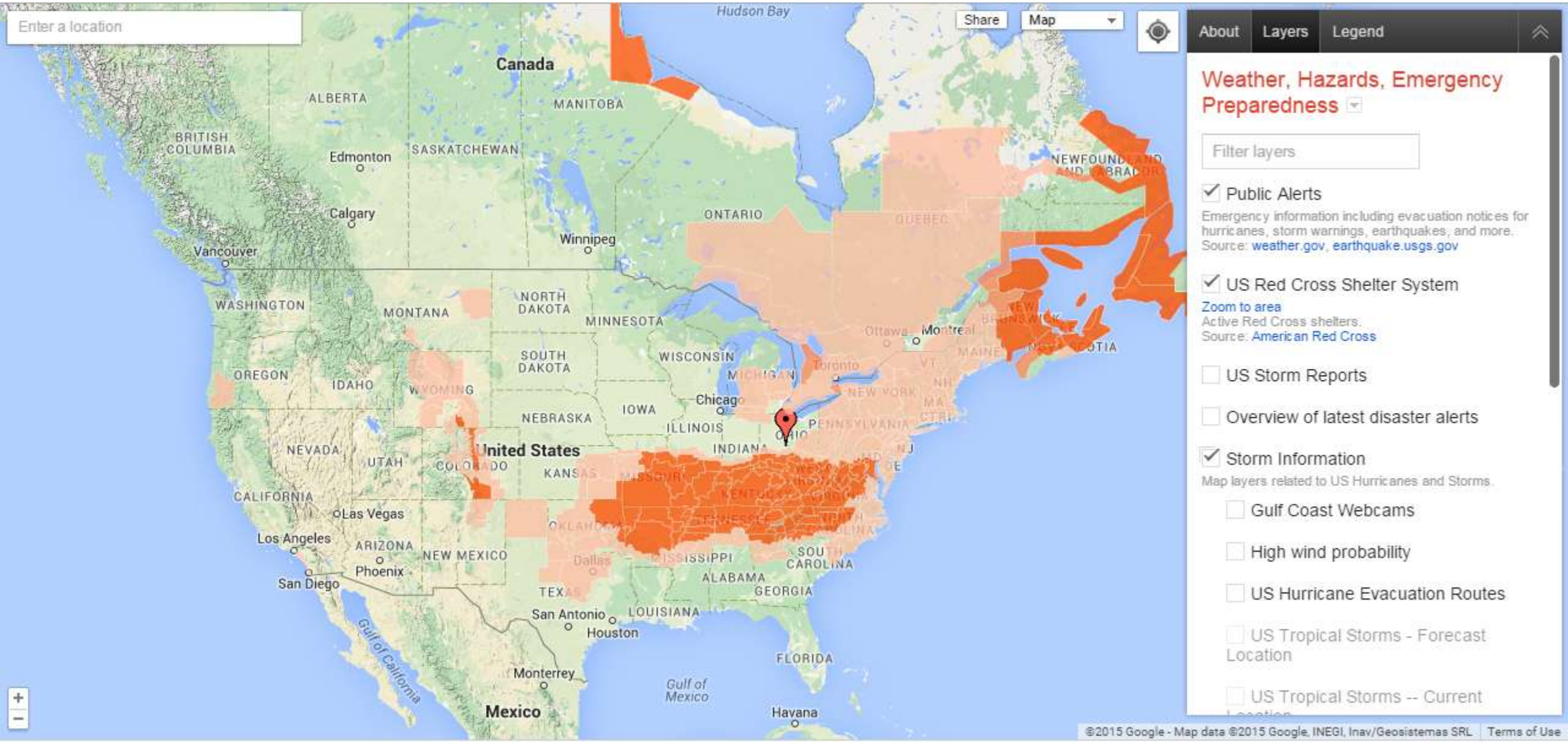
2002 2001 2000 1999 1998 1997 1996 1995 1994 1993 1992 1991 1990 1989 1988 1987 1986 1985

No data No data No accurate data No data No accurate data No data

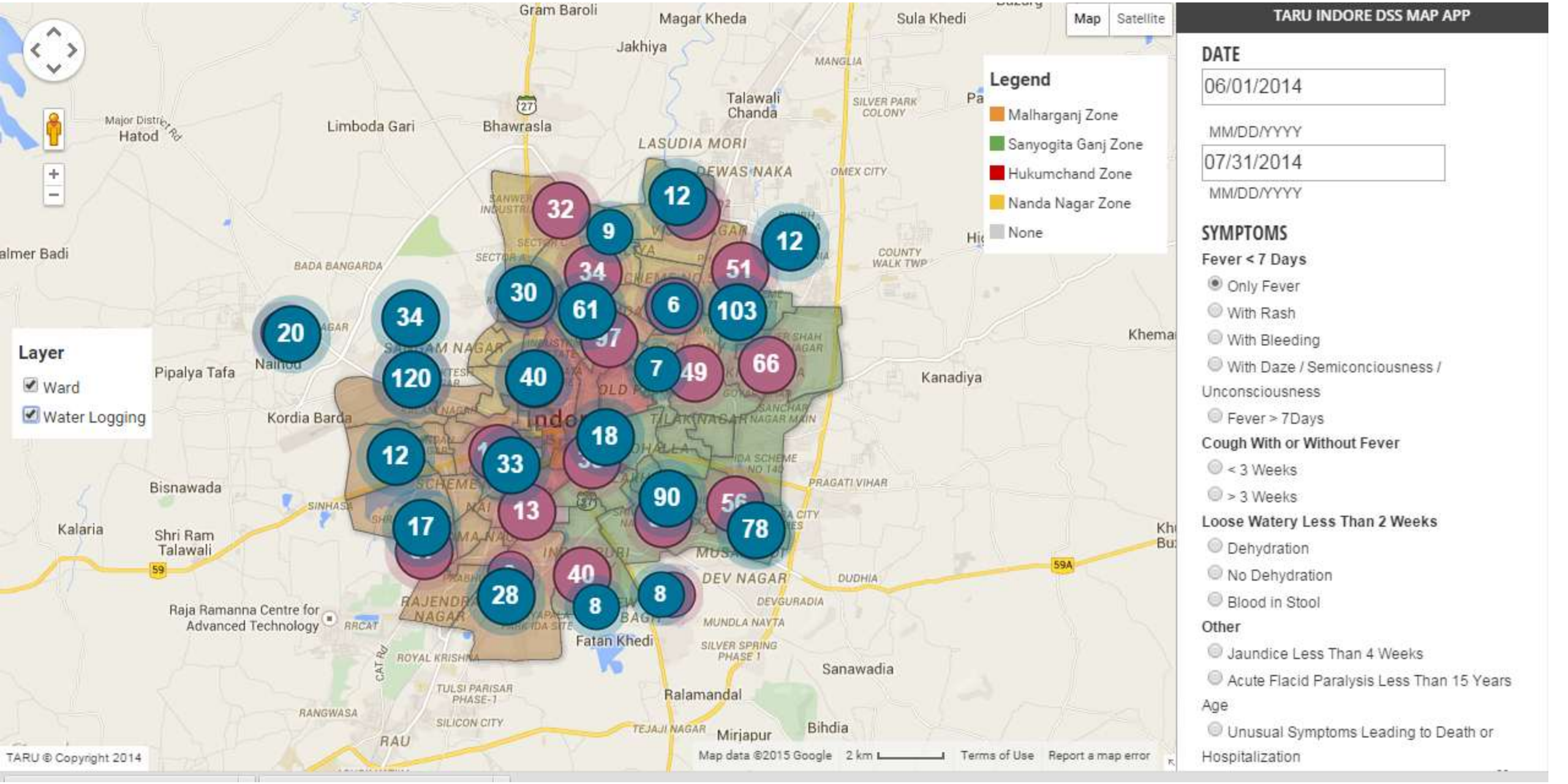
Global Risk Data Platform: http://preview.grid.unep.ch/index.php?preview=map&lang=eng

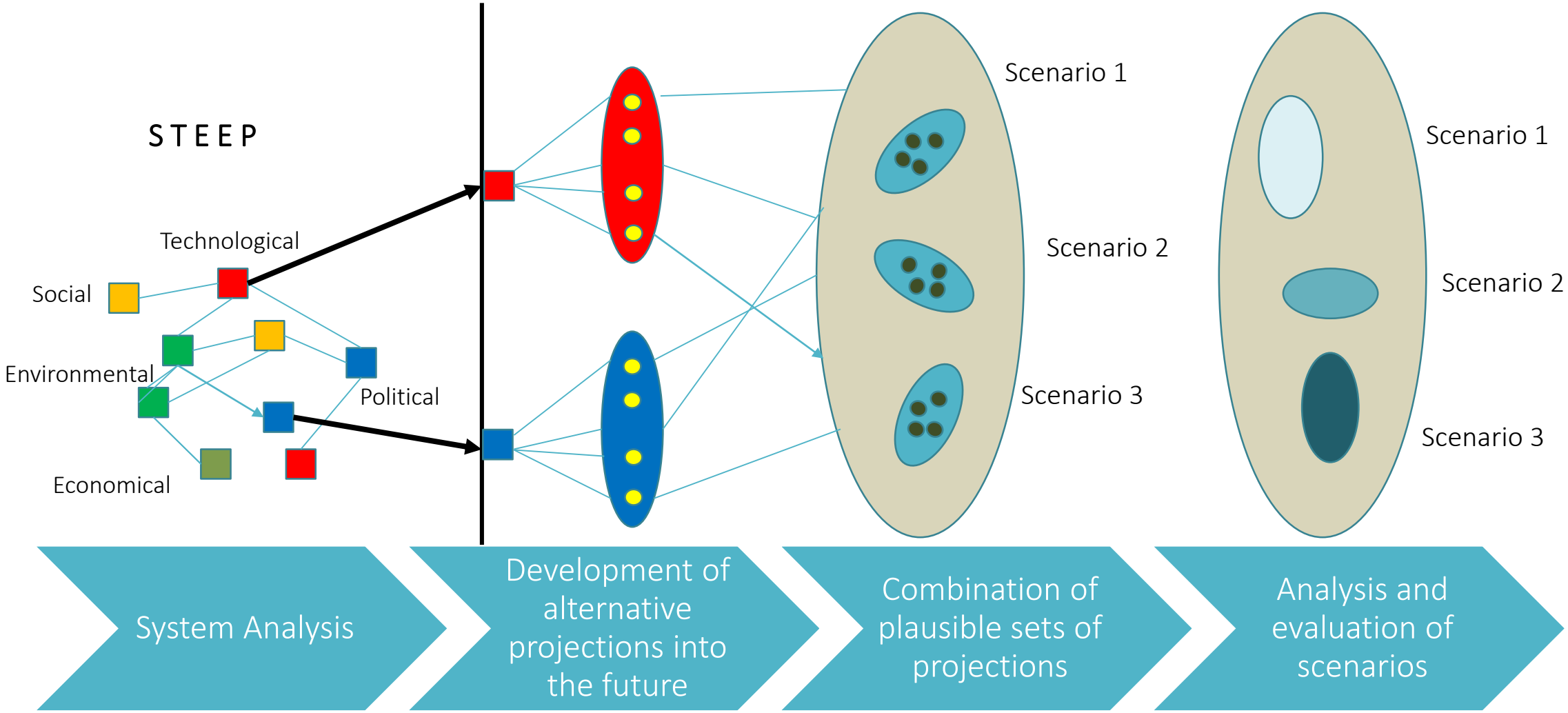


https://google.org/crisismap/weather_and_events



http://www.taru.org/indoredss/2014/

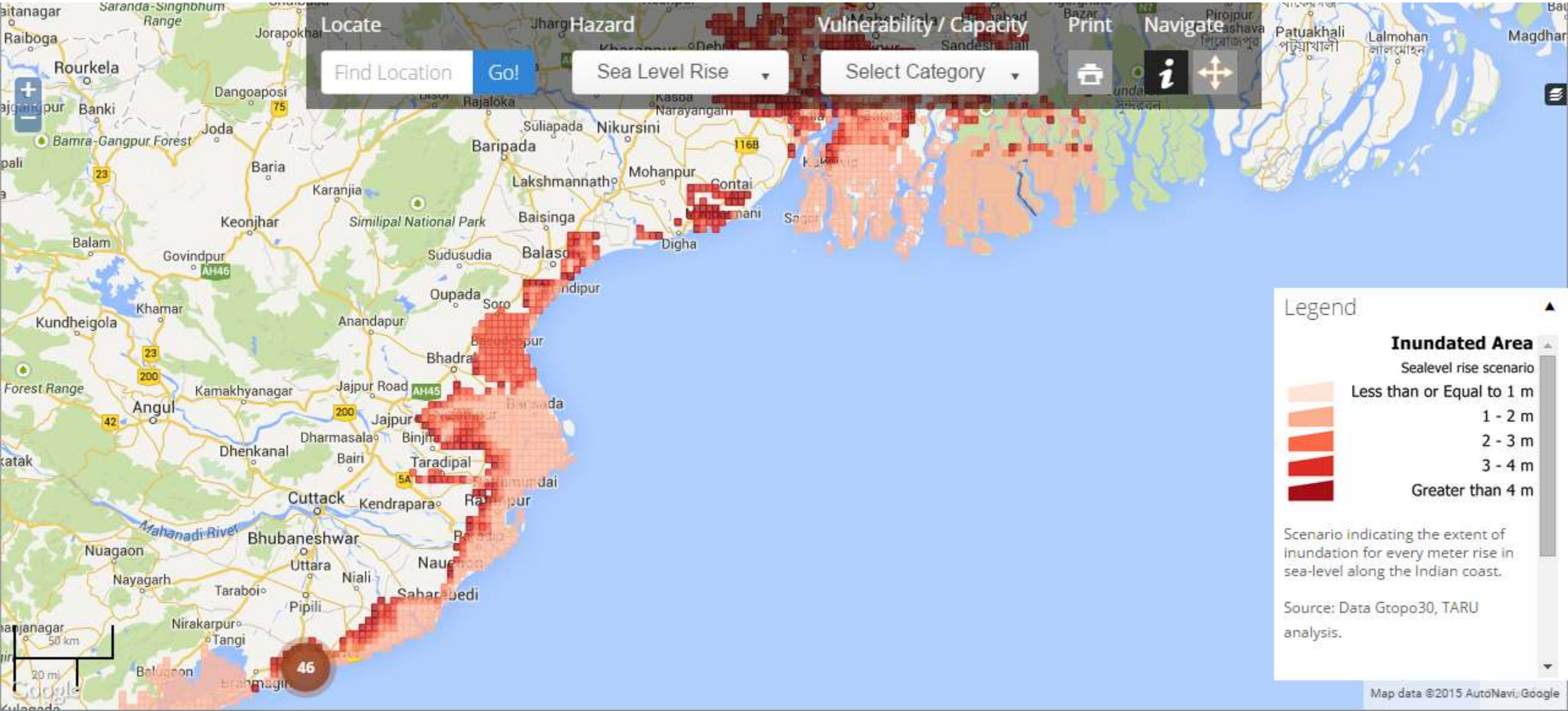




http://sspp.proquest.com/archives/vol9iss2/1206-026.lorenz.html

http://www.fourscenes.com.au/LearningFromScenarios0305.pdf

http://atrisk.in/



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This platform helps in visualizing Hazard Risk and Vulnerability information. To contribute or download information please login.

Login Contact

http://www.eldis.org/go/topics/resource-guides/livelihoods/impact#.VOFtefmUeSo

eldis

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LATEST ADDITIONS

ALL RESULTS | DOCUMENTS | ORGANISATIONS

1 2 3 4 ... 7 8 9 10 Items 1 to 10 of 93

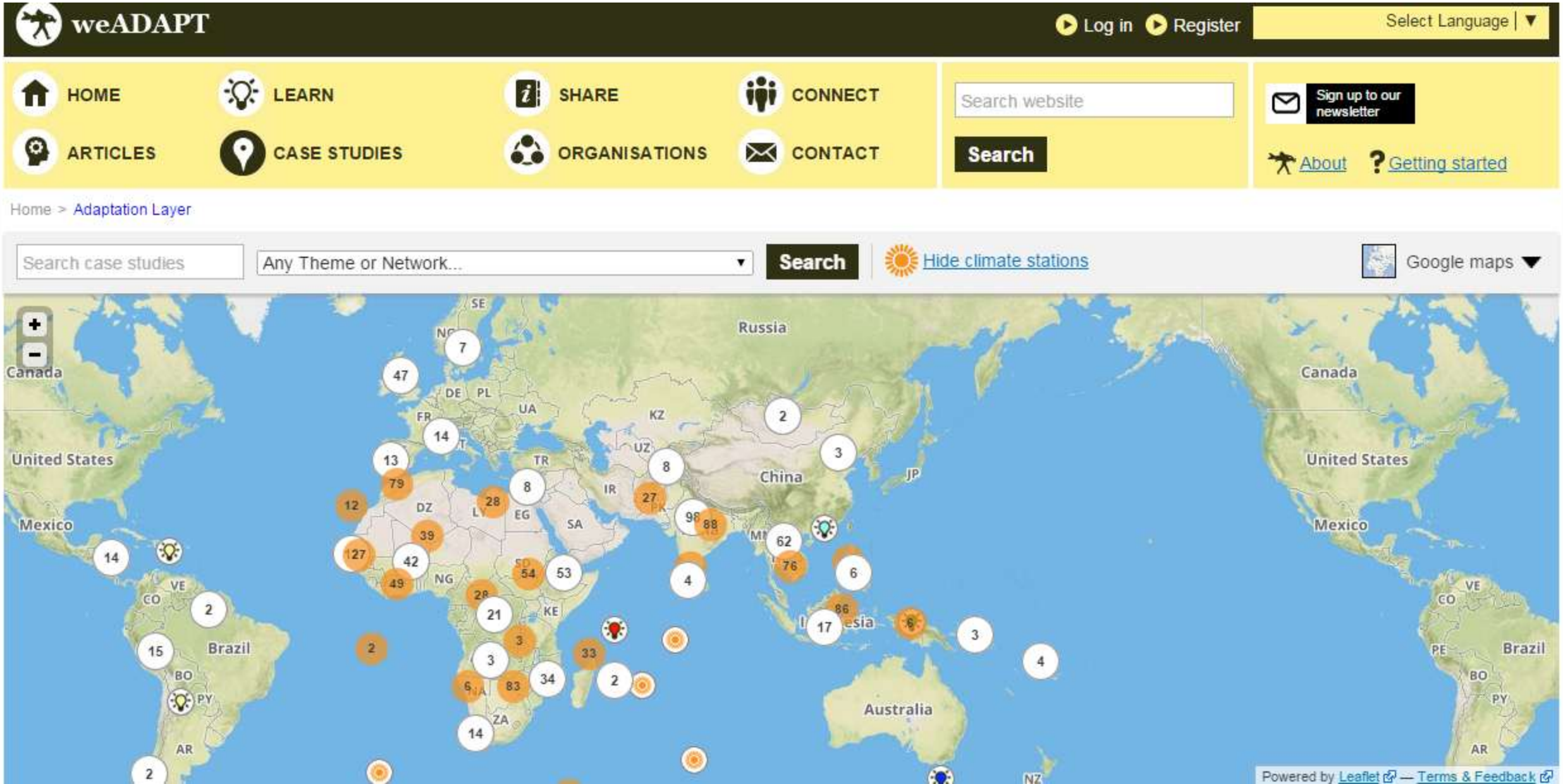
Comparative analysis of population transition in India and China

C. Alok Ranjan / Institute of Economic Growth, India, 2007

India and China are the only two billion plus countries in the world today. According to the 2004 revision of the world population prospects prepared by the United Nations, the two countries accounted for more than 37 per cent of the ...

Pakistan: energy sector appraisal

https://weadapt.org/placemarks/maps/weather-station



Conjunctive Water Management Assessment Tool

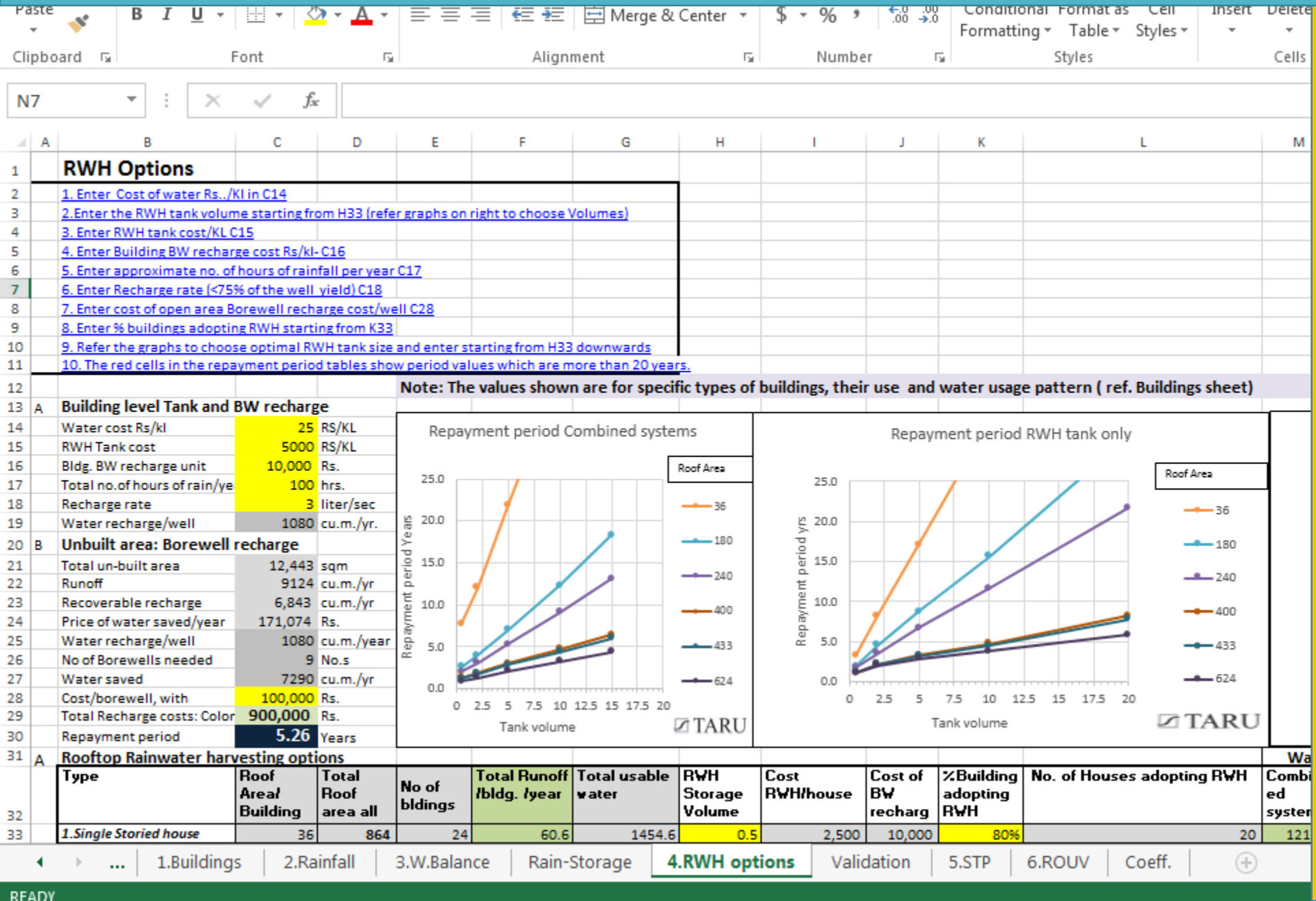
Location: India

Status: Working

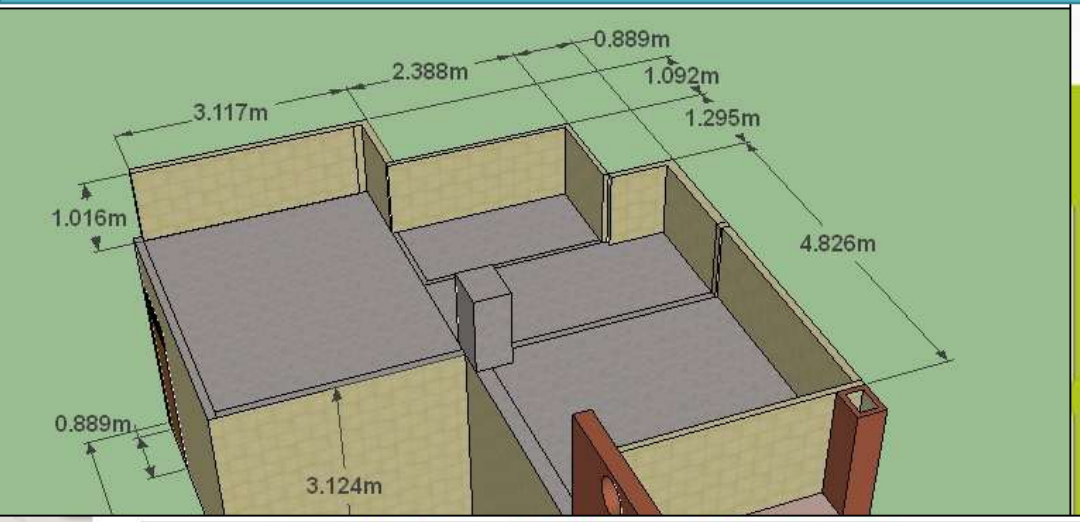
User: Open

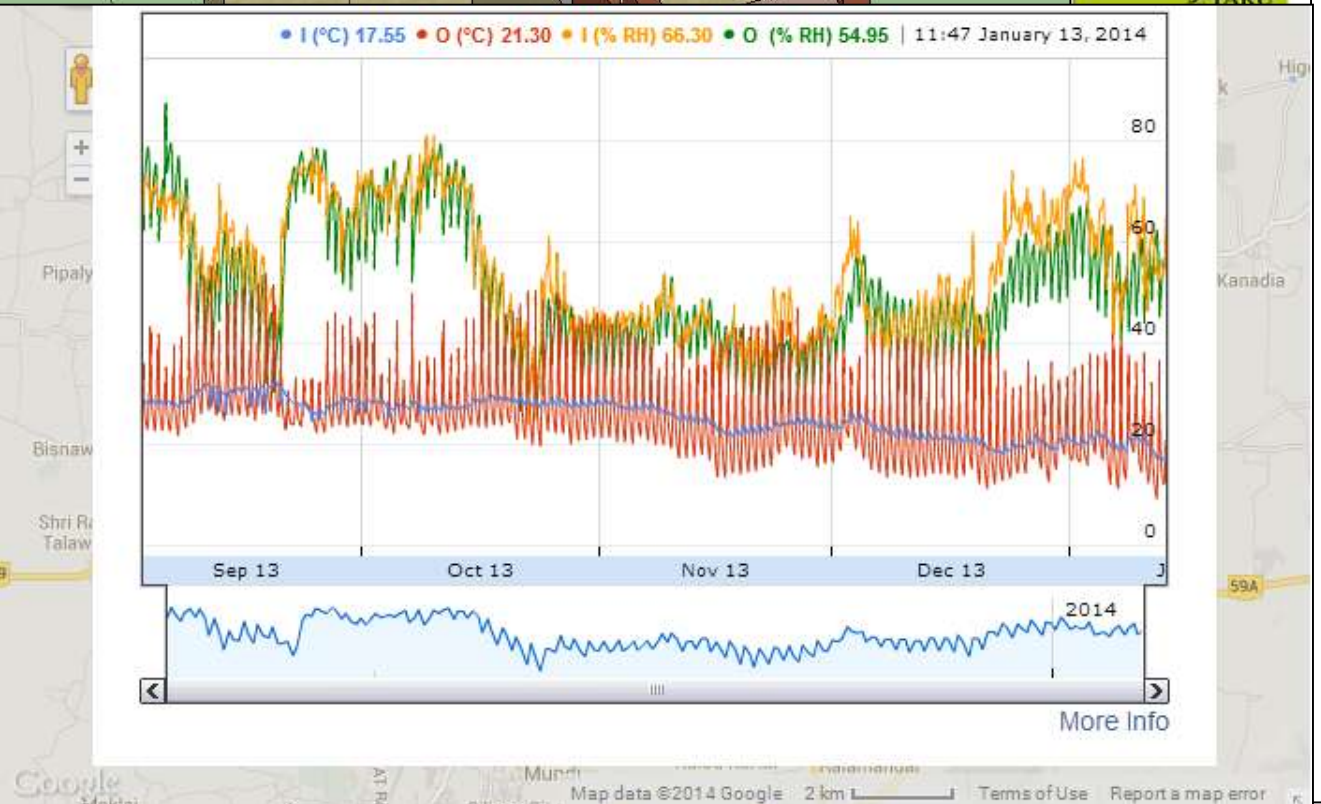
This tool was developed to help community assess their water management strategies, cost of implementation and repayment period.

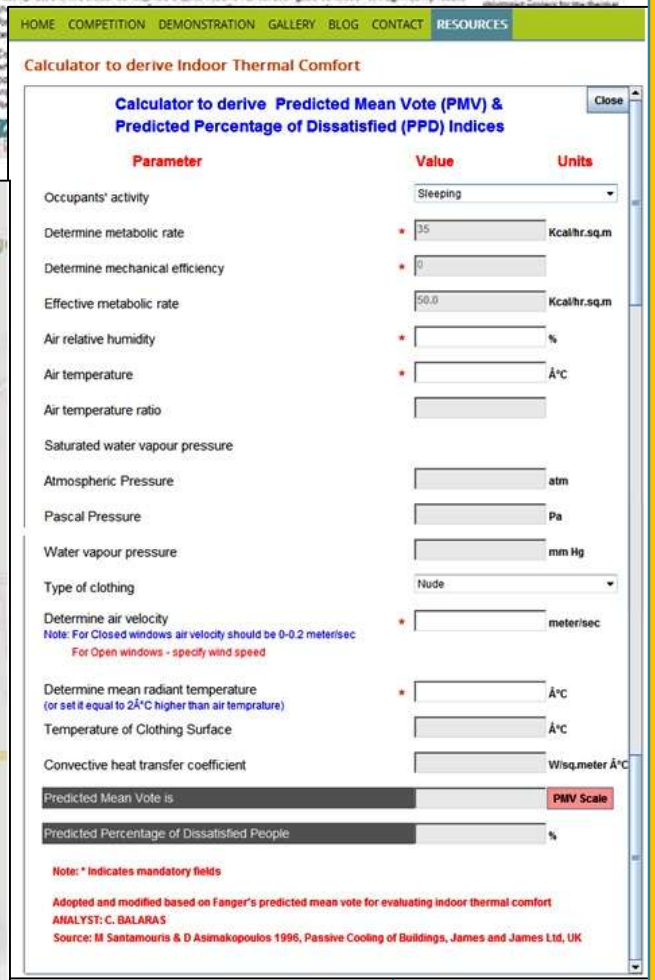
The tool includes options including water balance, rain water harvesting, sewage treatment plant and reverse osmosis taking into consideration the building details, rainfall and existing infrastructure.



Air Flow and Thermal Comfort Calculator (www.thermalcomfort.co.in)







Location: Surat and Indore

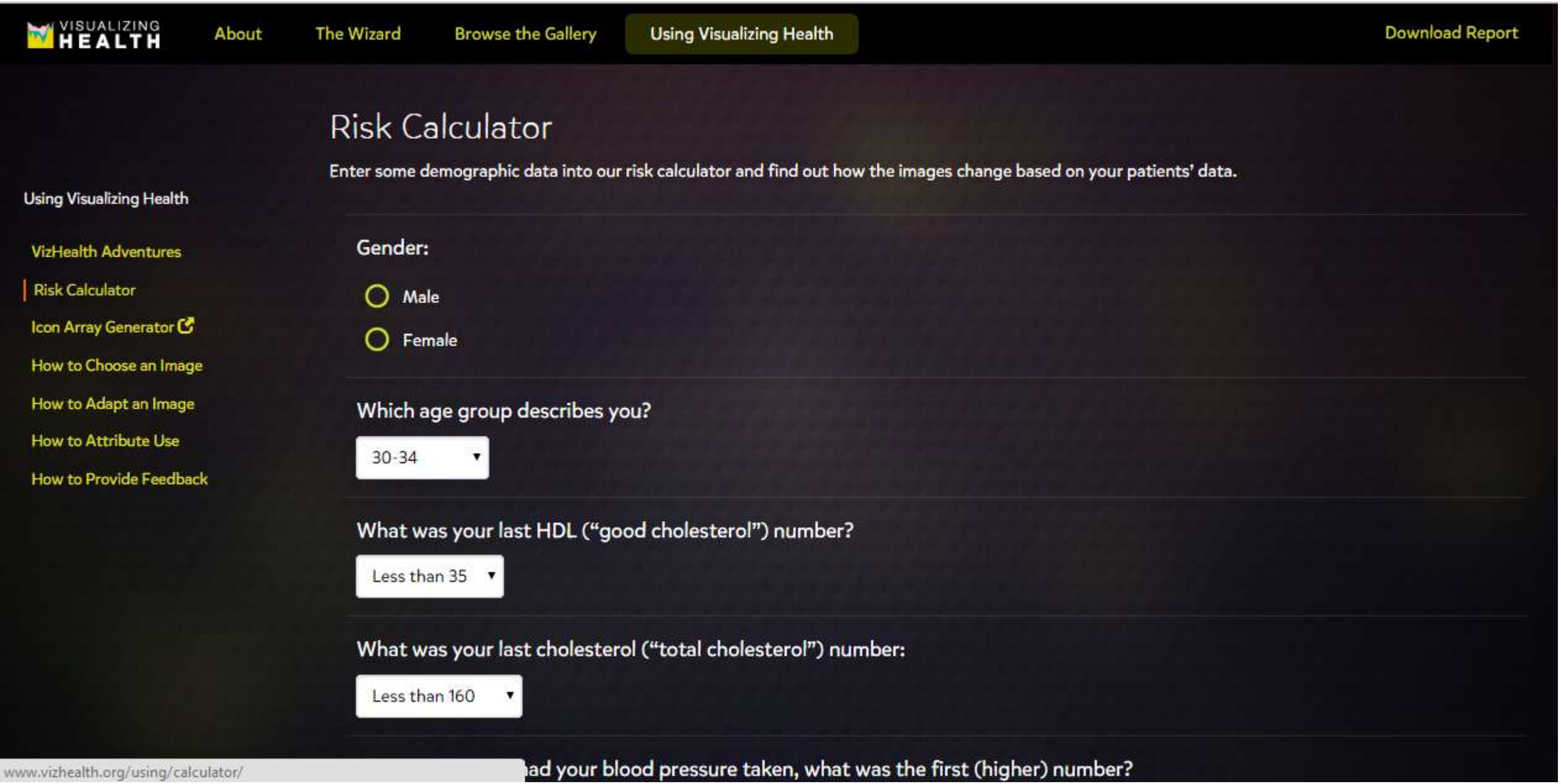
Status: Functional

User: Open access

The calculator currently helps users access the comfort level within a space given basic information. The tool also helps users access the maximum possible air flow within a given space

This tool can also be used to identify cool roof and passive ventilation options (along with cost) that could be used to achieve the desired comfort level.

http://www.vizhealth.org/using/calculator/



Thank You

You can reach me at
mrajasekar@taru.org