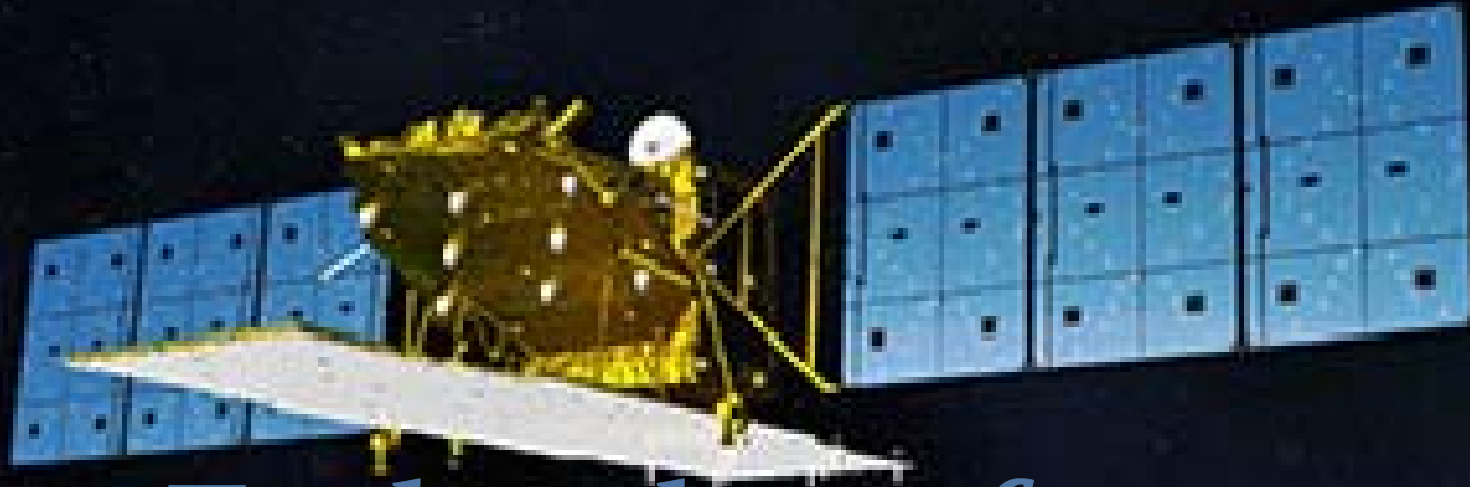


1st Joint Project Team Meeting for Sentinel Asia STEP3 (JPTM2013)

Bangkok

27-29 November 2013



Space Technology for Safer World

Nitin Tripathi,
Asian Institute of Technology



Landsat Series

Continues to provide satellite data

Landsat 8 images the entire Earth every 16 days.

Data collected are available to download at no charge from GloVis, EarthExplorer, or via the LandsatLook Viewer within 24 hours of reception.

Landsat-8



Aim at social needs

- 1) Disaster monitoring of damage areas,
- 2) Continuous updating of data archives -national land and infrastructure information
- 3) monitoring of cultivated areas
- 4) Global monitoring of tropical rain forests
- 5) The state-of-the-art L-band Synthetic Aperture Radar (PALSAR-2) aboard ALOS-2. The PALSAR-2 - day and night observation, and in all weather conditions.

ALOS-2 (Daichi-2)





AIT



Your Resource and Partner for
Sustainable Development



AIT
Asian Institute of Technology



Vision & Mission

VISION:

AIT will strive to become a leading and a unique regional multicultural institution of higher learning, offering state of the art education, research and training in technology, management and societal development.

MISSION:

The mission of AIT in the context of the emerging environment is "to develop highly qualified and committed professionals who will play a leading role in the sustainable development of the region and its integration into the global economy".





Key Facts

- **2300+** Students from **63+** Countries/Territories
- **19000+** Alumni from 88 Countries/Territories
- **29000+** Short-term Trainees from **70+** Countries/Territories
- **130** Internationally recruited Faculty from **20+** Countries
- **450+** Research and Support Staff from about **30** Countries
- Approximately **450** Sponsored Research Projects – **1.6 Billion THB**
- **24** Research and Outreach Centers
- Degrees: certificate, diploma, Bachelor (B.S.E, B.Sc.), Master (MSc, Meng, MBA), Doctoral (PhD, DEng, DTechSc, DBA).
- Operational Turnover: **1.2 Billion THB**
- Organization of Higher Education





School of Engineering and Technology

Civil and Infrastructure Engineering

- Construction, Engineering and Infrastructure Management
- Geotechnical and Earth Resources Engineering
- Structural Engineering
- Transportation Engineering
- Water Engineering and Management

Industrial System Engineering

- Mechatronics
- Microelectronics and Embedded Systems
- Industrial and Manufacturing Engineering
- NanoTechnology

Information and Communications

- Computer Science
- Information Management
- Remote Sensing and Geographic Information Systems
- Telecommunications

Interdisciplinary Programs

Disaster Preparedness Mitigation and Management

Information and Communications Technologies

Geosystem Exploration and Petroleum Geoengineering

Offshore Technology and Management



School of Environment, Resources and Development

Bio-resources

- Agricultural Systems Engineering
- Aquaculture and Aquatic Resources Management
- Food Engineering and Bioprocess Technology

Development Studies

- Gender and Development Studies
- Natural Resources Development
- Regional and Rural Development Planning
- Urban Environmental Management

Energy and Environment

- Energy
- Pulp and Paper Technology
- Environmental Engineering and Management

Interdisciplinary Programs

Agribusiness
Management

Energy
and
Environment

Energy
Business
Management

Greater
Mekong
Sub-region
Development
Studies

Climate
Change and
Sustainable
Development

Disasters
Preparedness
and Mitigation
Management



School of Management

PROGRAMS

MBA PROGRAM	DUAL DEGREE MBA	DBA PROGRAM	EMBA PROGRAM	Professional Masters
<ul style="list-style-type: none"> • Entrepreneur-ship • Technology Management • Sustainable Business • Finance • Human Resource • Marketing • Strategy • International Management 	<ul style="list-style-type: none"> • ESCP Europe - France, • SKEMA – France • HHL Leipzig – Germany • EBS- Germany 	<ul style="list-style-type: none"> • DBA Sri Lanka • DBA Taiwan • DBA Thailand • DBA China • DBA Vietnam • DBA India 	<ul style="list-style-type: none"> • International Business • Management of Technology 	<ul style="list-style-type: none"> • Banking an Finance • Corporate Social Responsibility • Technology Management
PHD PROGRAM	INTERDISCIPLINARY PROGRAMS			
<ul style="list-style-type: none"> • PhD Research Focus but not limited to, • Sustainability and Corporate Social Responsibility in Business • Climate Change Policy and Corporate Compliance • Social responsibility, Behavioral Change and Social Impact • Innovation in Green Products and Services • Technology needs assessment and transfer 	MBA PROGRAM	Professional Masters		
	<ul style="list-style-type: none"> • Energy Business 	<ul style="list-style-type: none"> • Energy Business Management • Agri-Business Management • Aquaculture Business Management 		



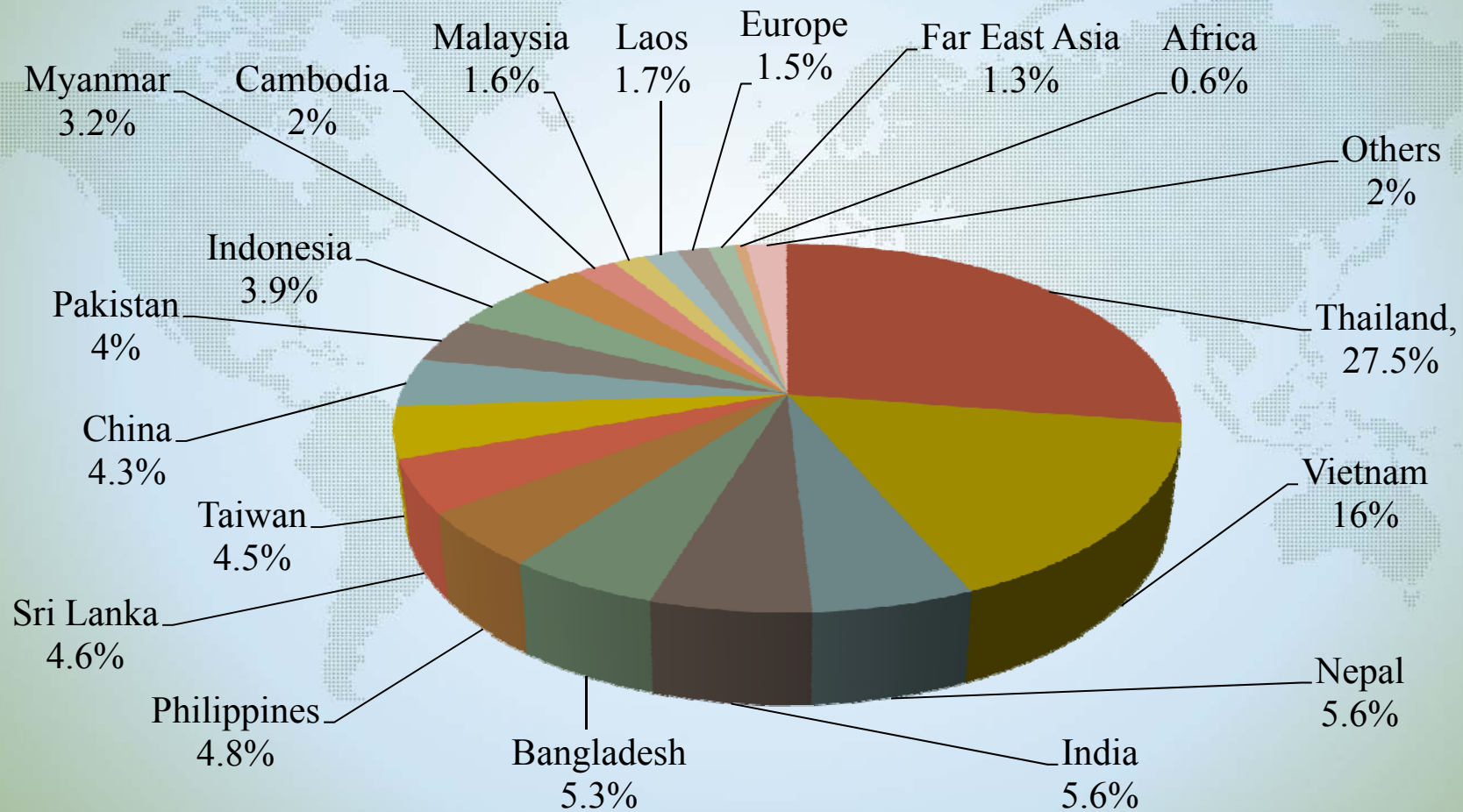
International Reach

This is a visual representation of where AIT works through its myriad partners in government, academia, international and non-governmental organizations and the private sectors.





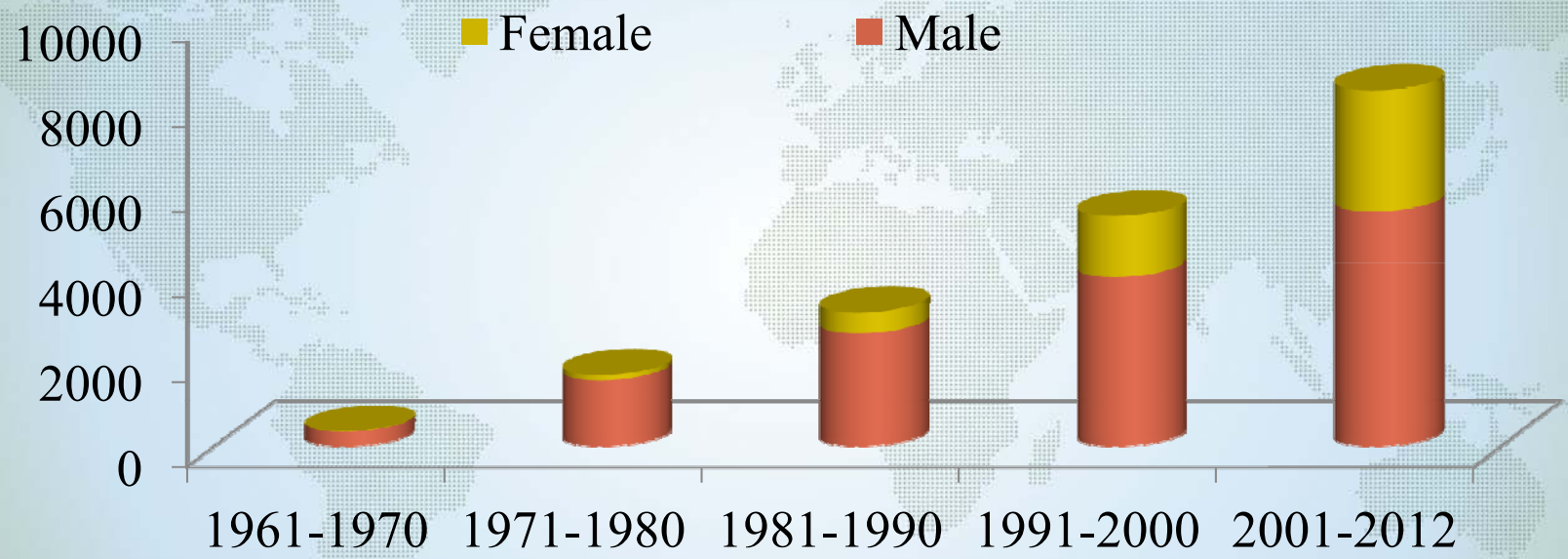
19,000+ Alumni from 88 Countries & Territories





Distribution of Graduates by Gender

(1961 - 2012)

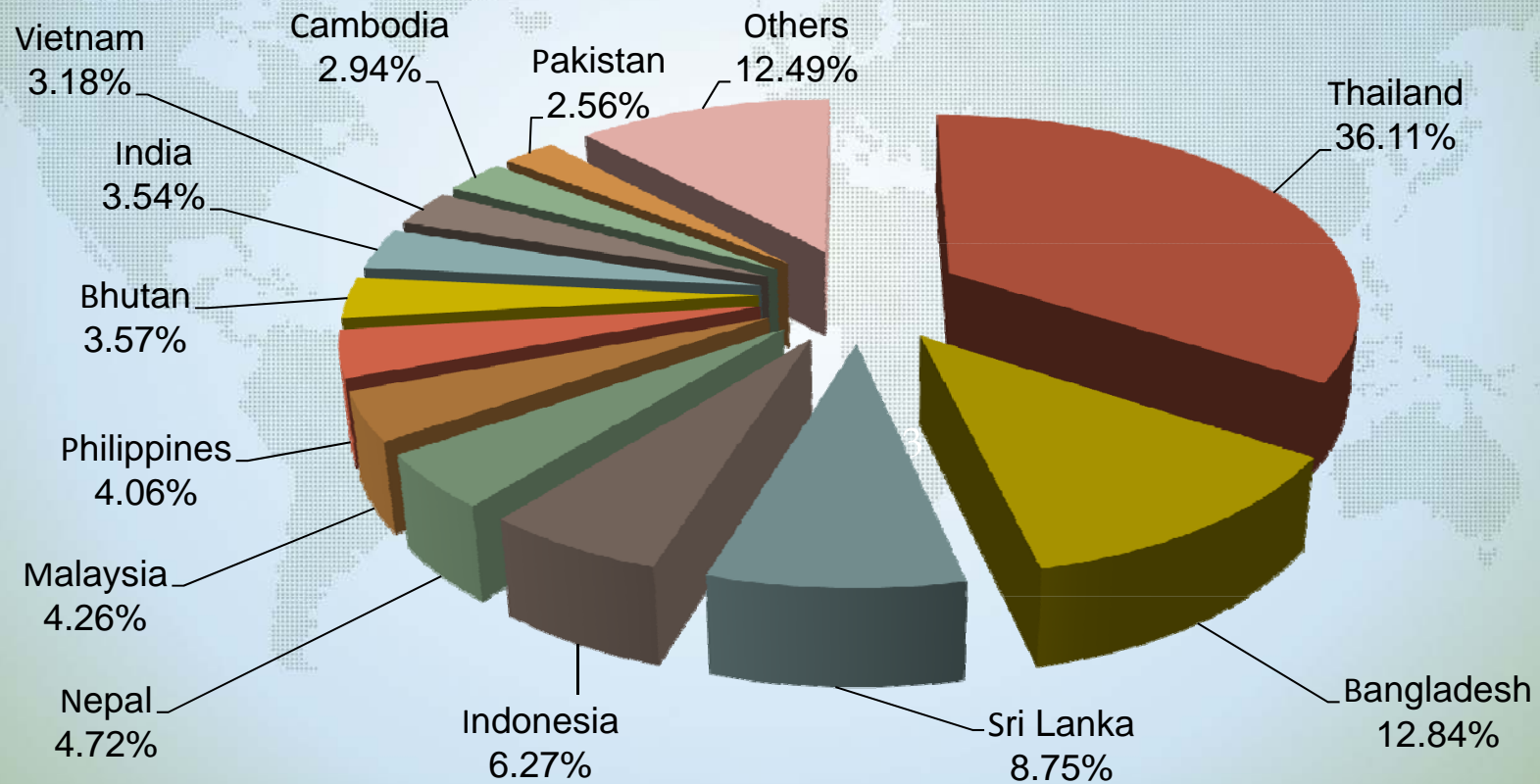


	1961-1970	1971-1980	1981-1990	1991-2000	2001-2012	Total
Male	346	1577	2673	3993	5516	14105
Female	11	118	488	1414	2874	4905



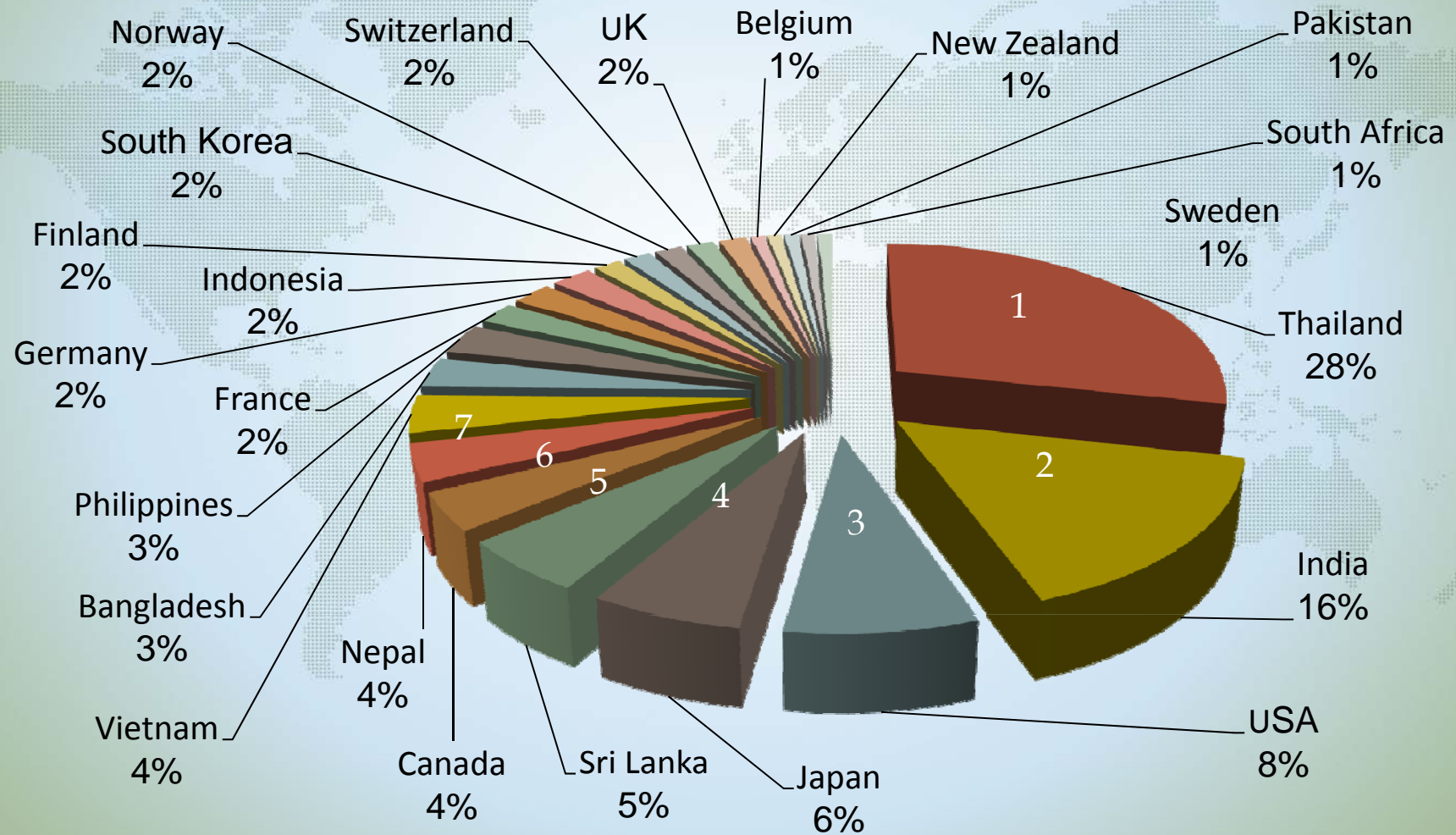
AIT Extension Trainee Graduates

29,000+ Short-term trainees from 70+ Countries/Territories





Faculty: Nationality Distribution



Remote Sensing & GIS

Education & Research

Geosensing for Livable Asia





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- :: [LINKS](#)



View My Stats
00049772

Welcome to

Remote Sensing & Geographic Information Systems (RS&GIS)

(A Field of Study under School of Engineering and Technology)

Welcome to Remote Sensing & Geographic Information Systems (RS&GIS) Field of Study (FoS) at **Asian Institute of Technology (AIT)**. This FoS was previously known as Space Technology Applications and Research (STAR) Program. AIT is an international graduate institution of higher learning with a mission to develop highly qualified and committed professionals who will play a leading role in the sustainable development of the region and its integration into the global economy.

The FoS consists of 2 full-time faculty, 4 visiting faculty, 3 affiliated faculty and 3 adjunct faculty supported by technical and administrative staffs. Our FoS is ranked amongst the strongest programs in this region. We take pride in our laurels, our vision and our pursuit of excellence.

Our modern curriculum covers all aspects of Remote Sensing and GIS research and applications. We are currently offering different course from basics to highly specialized areas of RS and GIS. The details of all the courses can be found within the website.

We offer a graduate program leading to Master's of Science or Master's of Engineering and Doctor of Philosophy, Doctor of Technical Science or Doctor of Engineering. The degree

► [Univ. Teknologi Malaysia \(UTM\)](#) with [40 students and 4 Faculty members](#) will have a study tour to AIT under the Global Outreach Program and will visit as [Scheduled](#) to **RS&GIS and GIC** from 15 Dec ~ 17 Dec 2009.

► [The doctoral comprehensive final examination of Mrs.Suwisa Mahasandana](#), a candidate for the degree of Doctor of Engineering in RS&GIS FoS is scheduled

<http://www.rsgis.ait.ac.th>



RS & GIS

Faculty & Staff



Dr. Nitin K. Tripathi
Associate Professor & Field Coordinator
Specialization: GIS and its Application for
environment and Health, InternetGIS, GNSS
E-mail: nitinkt@ait.ac.th ;



Dr. Kiyoshi Honda
Visiting Professor
Specialization: Image Processing, Erosion
control, Terrain modeling
E-mail: honda@ait.ac.th ;



Dr. Sarawut Ninsawat
Instructor
Doctor of Creative Cities, Osaka City
University, Japan
Specialization: WebGIS, OGC Web
Services & Specifications,
E-mail: sarawutn@ait.ac.th



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Nakamura**
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E-mail: drraju@nus.edu.sg>¥



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Specialization: Mapping Technology
E-mail: taravudh@ait.ac.th



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Affiliated Faculty
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MODIS/NOAA
E-mail: surat@ait.ac.th



Dr. Vivarad Phonekeo
Affiliated Faculty
Specialization: MODIS/ NOAA Applications
E-mail: vivarad@ait.ac.th ;



Ms. Pornwipa Kanit-Rittikrai
Administrative Secretary
E-mail: pornwipa@ait.asia



Ms. Premma Rao
Secretary
E-mail: premma@ait.asia



Mr. Myo San
Computer Lab-Sup, Graphics and Webmaster
E-mail: mmaung@ait.asia

Courses Taught

Course No.	Name	Required/ Elective	Credits	Instructor
AT76.01	Geographic information Systems (GIS)	R	3	Dr. Nitin Tripathi
AT76.03	Remote Sensing	R	3	Dr. Honda
AT76.02	Mapping Technology	E	2	Dr. Nagai Masahiko
AT76.09	Digital Image Processing	E	3	Dr. Kiyoshi Honda
AT76.10	Advance Remote Sensing	E	3	Dr. Kiyoshi Honda
AT76.13	Remote Sensing Data Analysis	R	2	Dr. Taravudh Tipdecho
AT76.16	Advance Application Development	R	2	Dr. Nitin Tripathi
AT76.17	Spatial Analysis Methods	E	2	Dr. Nitin Tripathi
AT76.14	Digital Photogrammetry	E	2	Dr. Taravudh T.

Course No.	Name	Required/ Elective	Credits	Instructor
AT76.9016	Health GIS	E	2	Dr. Nitin Tripathi
AT76.9019	Data Modeling for Geospatial Information	E	3	Dr. Nagai Masahiko
AT76.9026	Spatial Information Engineering	E	1	Prof. Ryosuke Shibasaki Dr. Noahiko Kohtake Dr. Masahiko Nagai
AT76.9021	Web GIS Technology	E	2	Dr. Sarawut Ninsawat
AT76.07	Advance Mapping Technology	E	2	Dr. Nagai Masahiko
AT76.9017	Terrestrial Photogrammetry and Topography from Remote Sensors	E	3	Dr. Taravudh Tipdecho
AT76.9020	Aerospace Technology	E	3	Dr. Nakamura S.
AT76.15	Microwave Remote Sensing	E	2	Dr. Kamiya Y.
AT76.9029	Introduction to Global Navigation Satellite Systems	E	1	Dr. Takuji Ebinuma Dr. Nobuaki Kubo Dr. Masahiko Nagai

Successful AIT alumni

Many AIT graduates have gone on to become well known and highly regarded in their chosen fields. Here are just a few of our successful alumni. This list of successful AIT alumni is mostly based on the list of AITAA distinguished alumni awardees.



Dr. Subin Pinkayan, M.Eng. 1961, *Water Resource Engineering*

- Chairman, Seatec Consulting Engineers, Thailand
- Chairman, GMS Power Public Company Limited
- Thailand 's former
 - Minister of Foreign Affairs
 - Minister of Commerce
 - Minister of University Affairs
 - Deputy Minister of Finance
 - Member of Parliament of Thailand

Dr. Shamsuddin M. Qureshi , M.Eng. 1965, *Structural Engineering and Construction*

- Chairman, Charter Inspection & Evaluation Committee, Education Department, Government of Sindh , Pakistan
- Former Secretary, Science & Technology Division, Government of Pakistan



Prof. Dr. Rodolfo C. Undan, M.Eng. 1969, *Water Resources Engineering*

- University President, Central Luzon State University , Philippines



Mr. George S. Y. Chen, M.Eng. 1972, *Community & Regional Development*

- Foundation Fellow, Sustainable Development Division, National Policy Foundation
- President, The China Road Federation
- President, National Transportation Industry Focus Group of KMT
- Former Acting Minister and Executive Vice-Minister of Ministry of Transportation and Communications, Taiwan



Ms. Khaleda Shahriar Kabir, M.Eng. 1975, *Water Resources Engineering*

- Additional Director General (Operation and Maintenance – 1), Water Development Board , Bangladesh



Dr. Bindu Nath Lohani, D.Eng. 1977, *Environmental Engineering*

- Vice-President (Finance and Administration), Asian Development Bank (ADB)
- Former Director General, Regional Sustainable Development Department (RSDD), ADB



- Admission Home
- Requirements and Procedures
- Admission Calendar
- Application
- Field of Study
- Costs and Expenses
- Financial Assistance
- Guidance for Applicants

- Academic Regulations
- Payment Advice
- Student Orientation
- Student Handbook

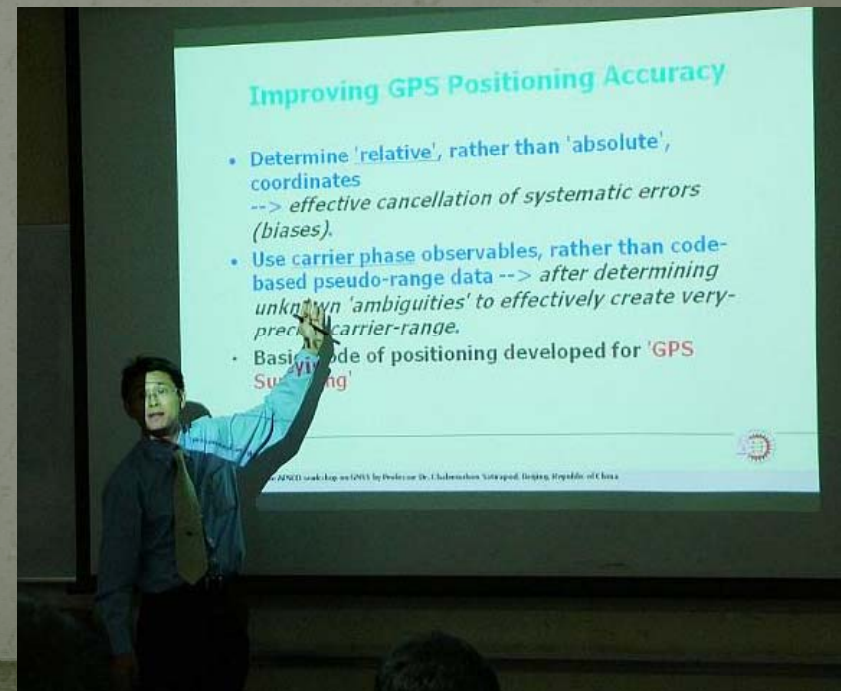
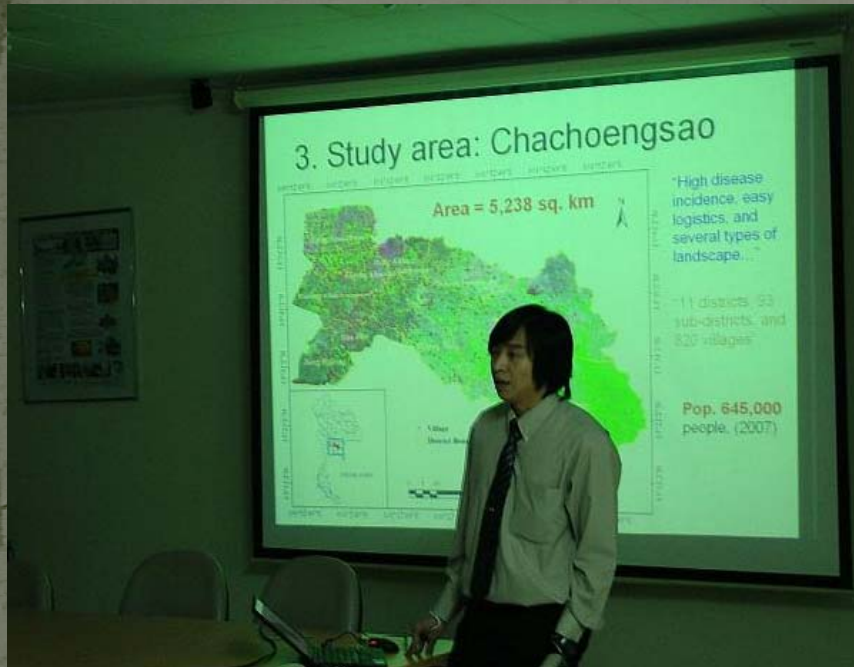
- Language Center
- Student Union

- Scholarship/ Assistantships
- FAQ

ADMISSION

Scholarships

- Thai Government Fellowships for Accelerated Human Resources Development in Science and Technology
- Sida Scholarship for Cambodia, Laos and Vietnam
- KAAD-AIT Scholarship Program
- Ford Foundation International Fellowships Program
- Joint Japan/World Bank Graduate Scholarship Program
- Asian Development Bank - Japan Scholarship Program
- Call for Applications: Competitive Awards for Post-Graduate Education: Gender and Development Studies with Specialization in Gender, Environment and Development
- UNEP Supported Scholarships for Environment and Sustainable Development Studies at AIT
- Flexible Degree Programs on Wetland and Aquatic Resources Management
- Admissions and Scholarships selection procedures Scholarships under the MOU between DICE, PRChina and AIT
- CIDA Scholarships for Master's and PhD Post doctoral fellowships
- Ford Foundation International Fellowships Program (IPF) thru the Asian Scholarship Foundation in Thailand
- Norwegian Ministry of Foreign Affairs Scholarships
- Netherlands Ministry for Development Cooperation Scholarships





Arcview GIS 3.2a



Intergraph Geomedia



MapInfo Professional 6.5



Grass GIS



ArcGIS 8.2/8.3



ArcGIS 9



e-learning from Japan-AIT-Malaysia



ER- Mapper



ERDAS



ERDAS



PCI



IDL/ENVI



Trimble Geoexplorer



Garmin GPS



RS & GIS

Research Activities



Research Thrust Areas

- Environmental and Agriculture
- Disaster
- Health GIS
- Sensor Web GIS
- GNSS and Indoor Positioning System

Research thrust Areas

- Environmental and Agriculture
- Disaster
- Health GIS
- Sensor Web GIS
- GNSS and Indoor Positioning System



Mayon, Philippines

EFFECT OF COHERENCE ON DTMs DERIVED FROM SAR INTERFEROMETRY

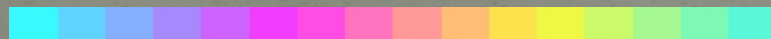
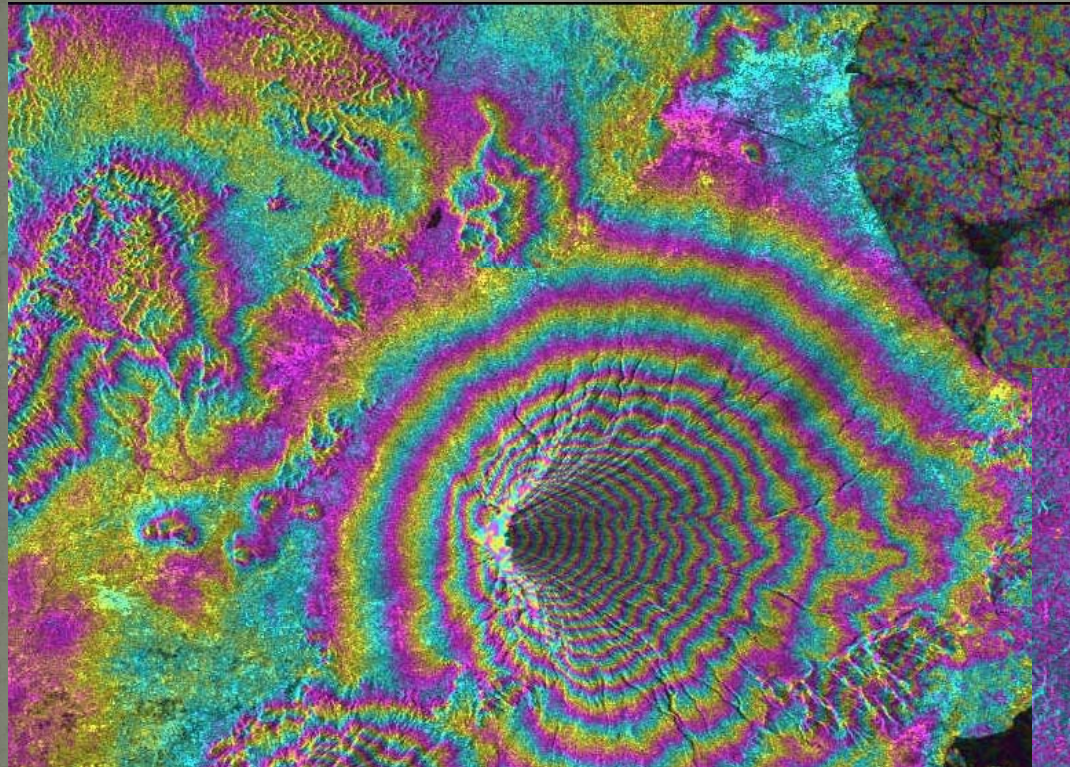
Vu Tuong Thuy

under the guidance:

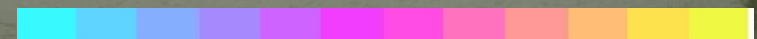
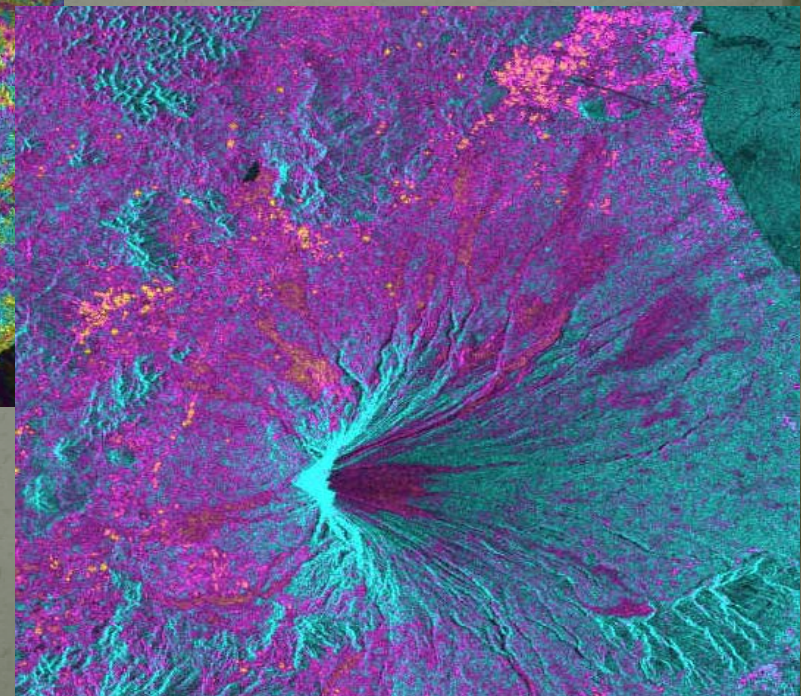
Dr. Mitsuharu Tokunaga



UNWRAPPED PHASE IMAGE
with power image as background

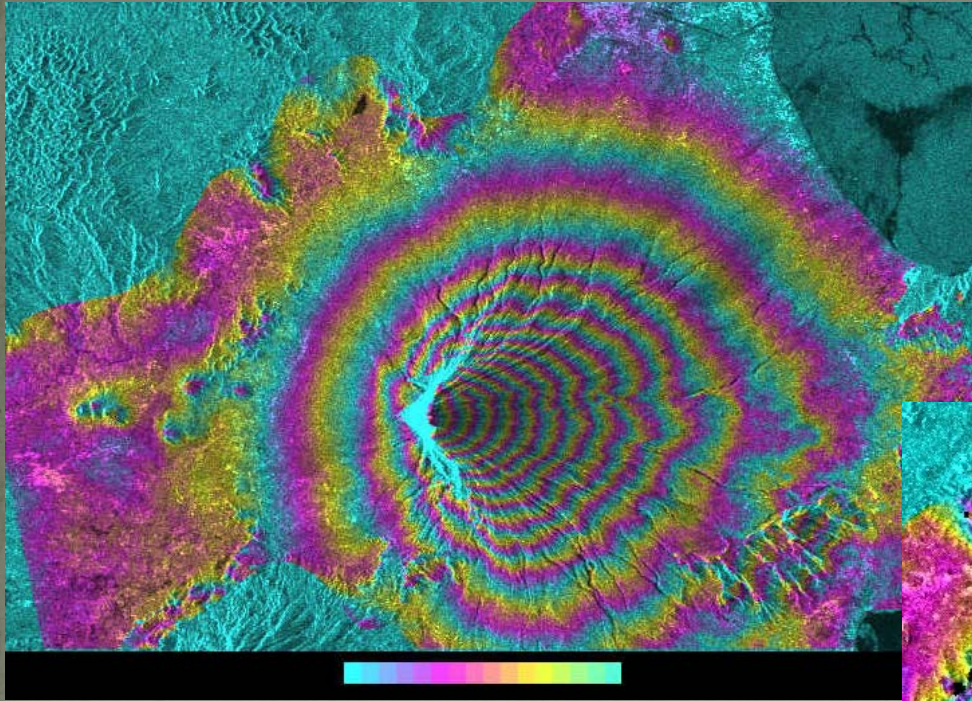


COHERENCE IMAGE
with power image as background

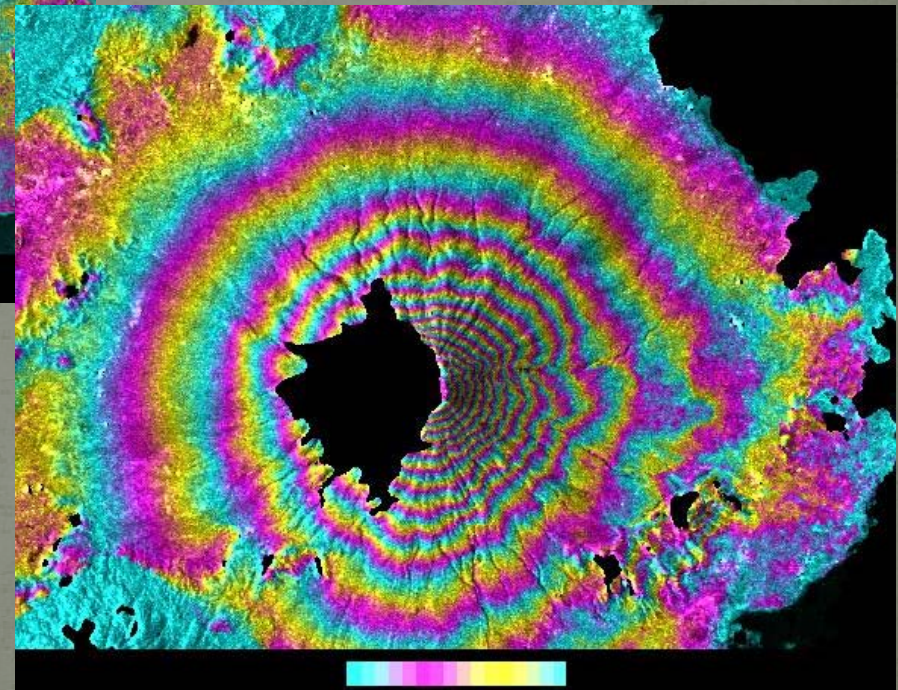


Higher coherence coefficient, clearer fringe

Slant-range Elevation image



160m/color cycle

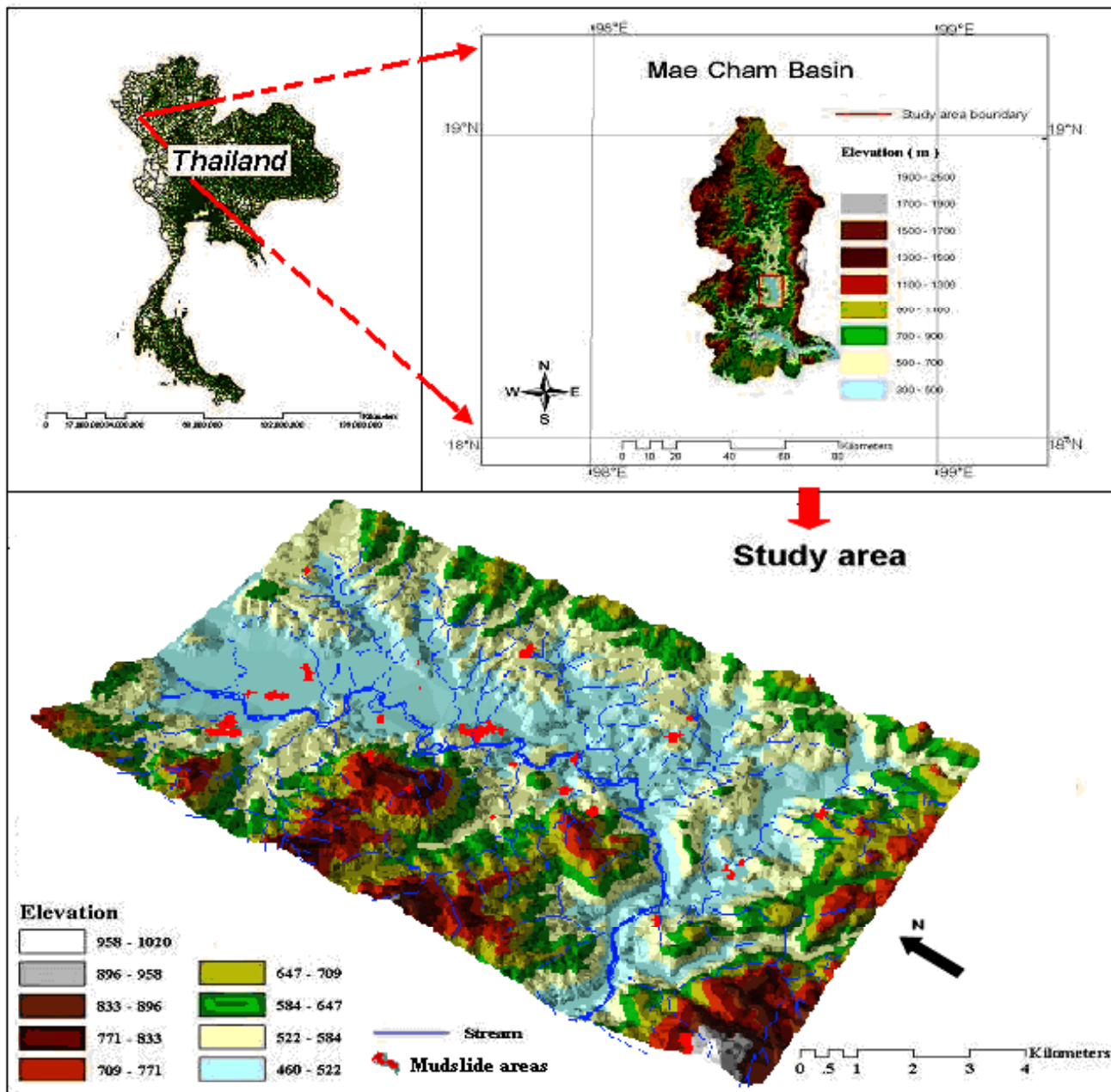


Ground-range Elevation image

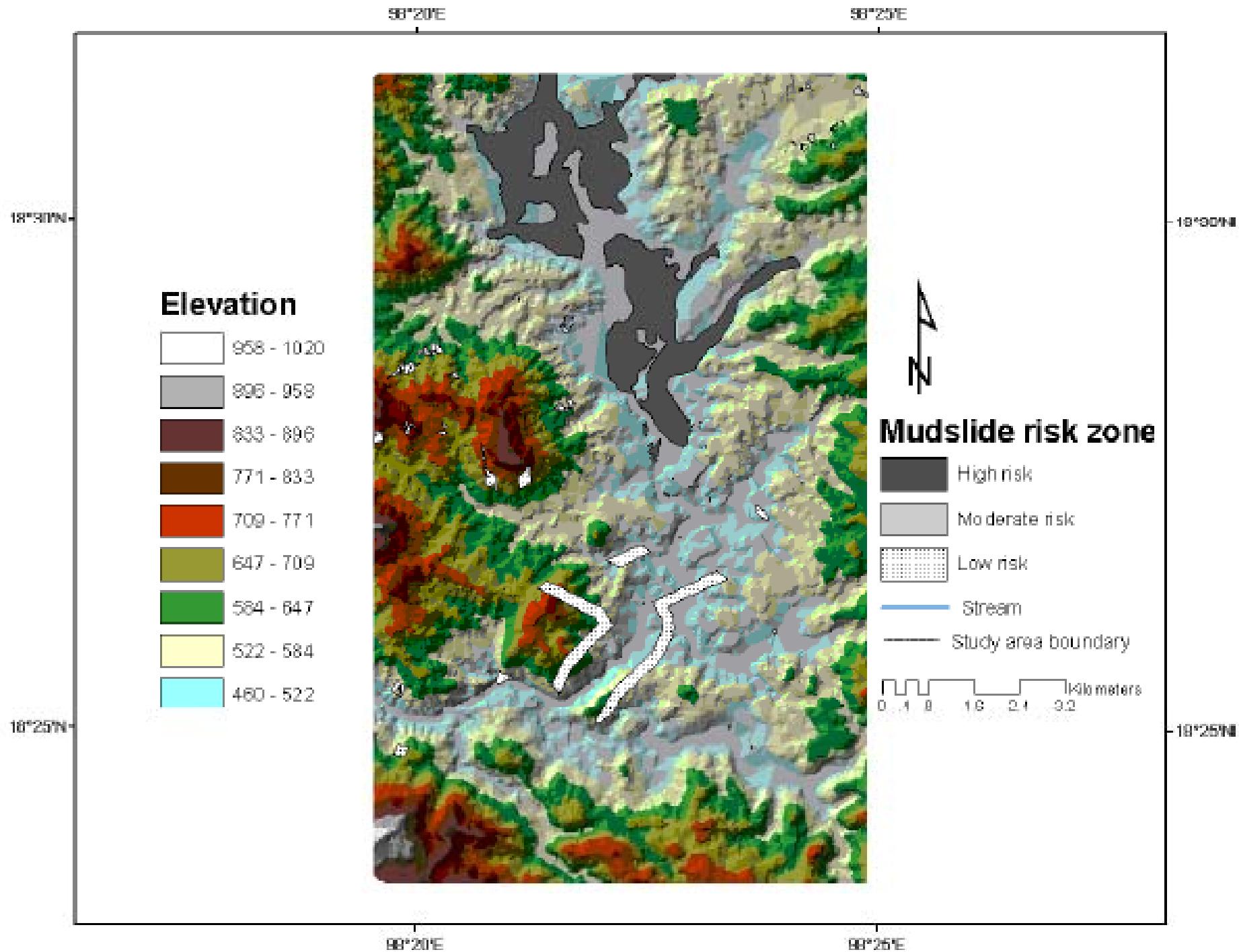
A Remote Sensing and GIS Approach for Mudslide Modeling Mae Cham Basin, Thailand



Dr. Anujit V.
Dr. Nitin K. Tripathi,
Dr. Roberto S. Clemente
Dr. Taravudh Tipdecho



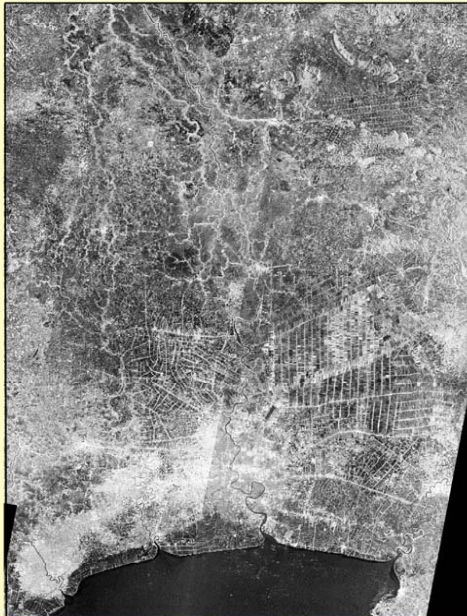
Part of the Mae Cham Basin, Thailand displaying the 3-d Terrain superimposed with mudslide occurrence



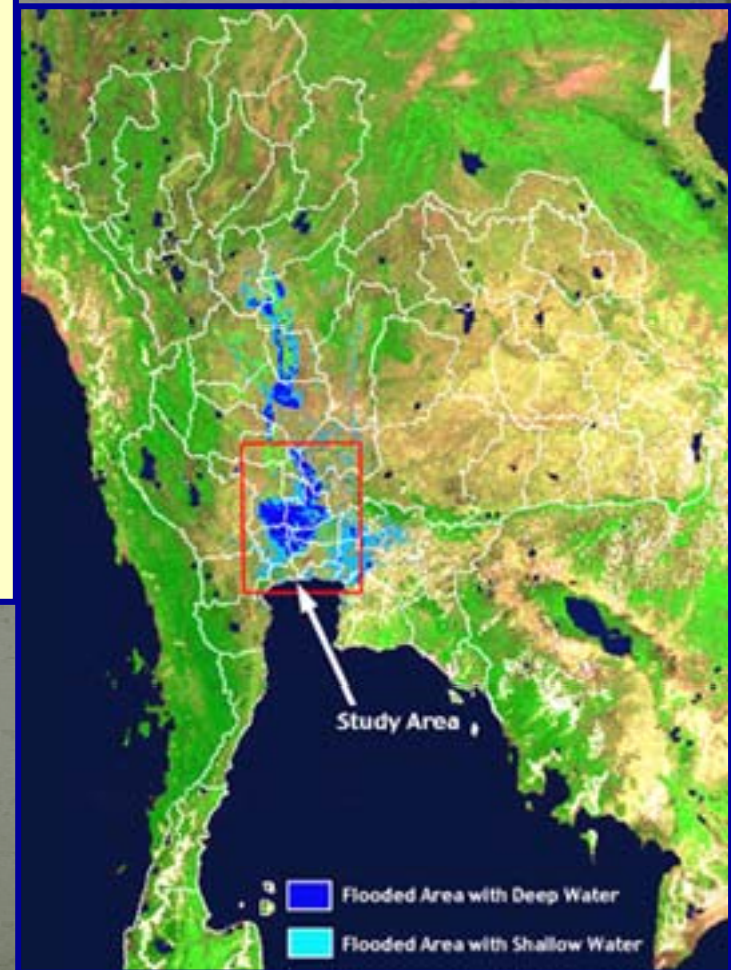
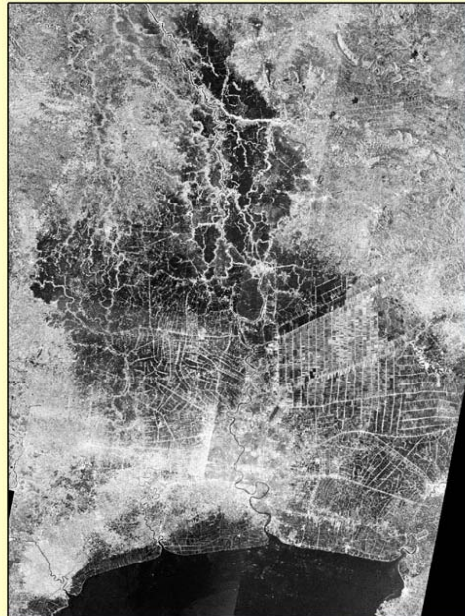
Flood Monitoring in Thailand

JERS-SAR Data

Dry Season (May, 1995)



Wet Season (Nov, 1995)

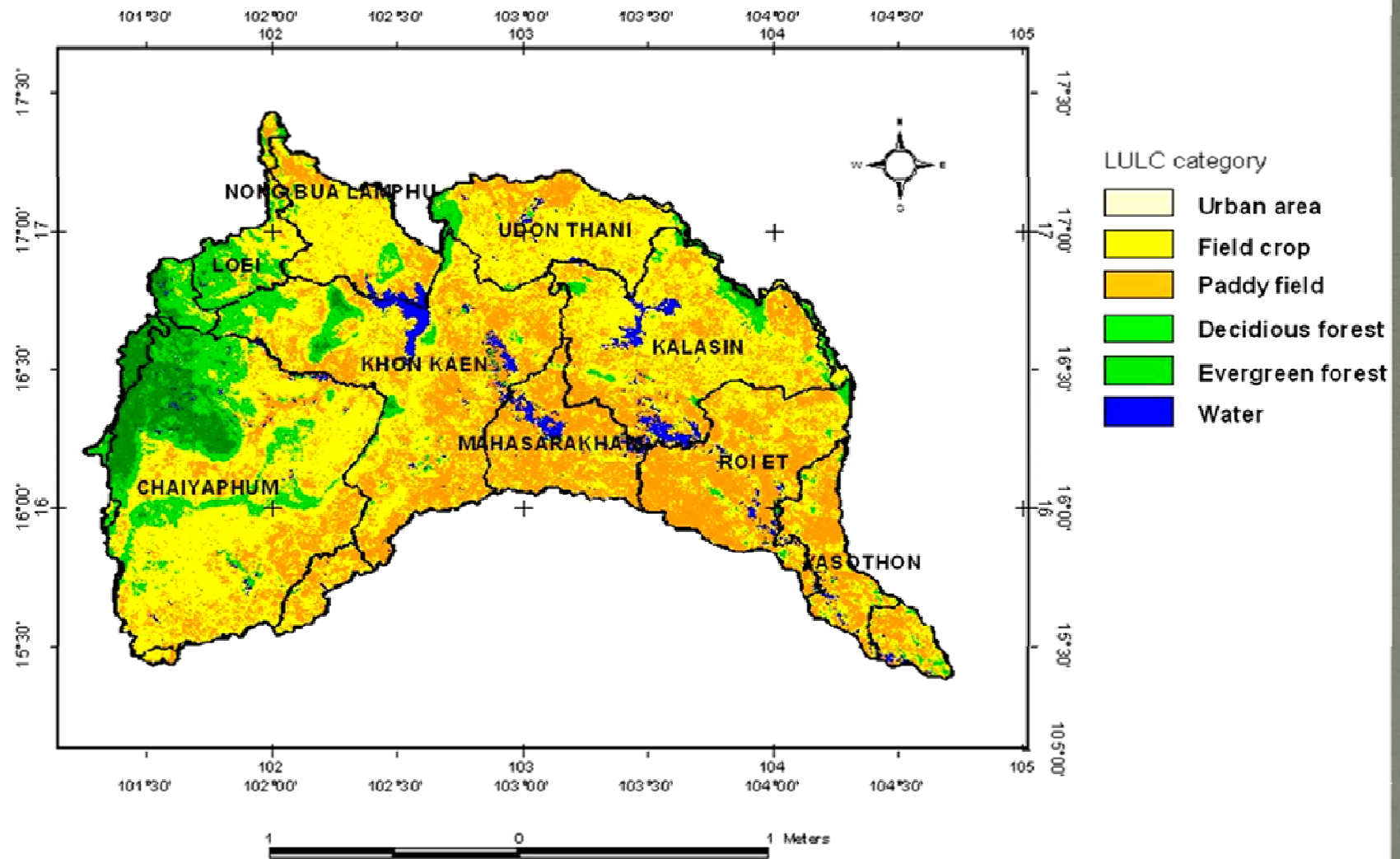


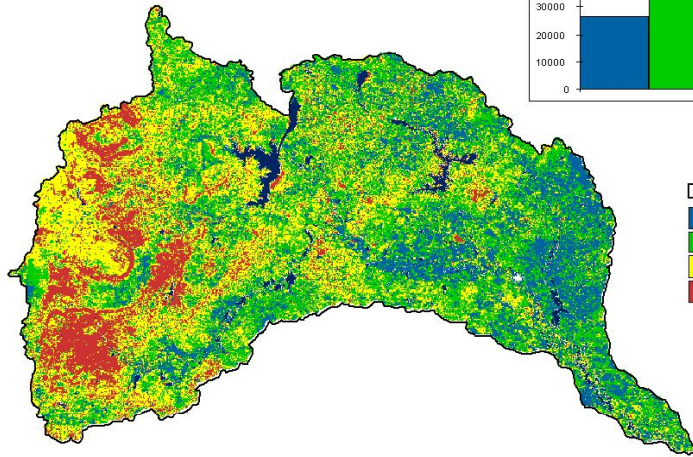
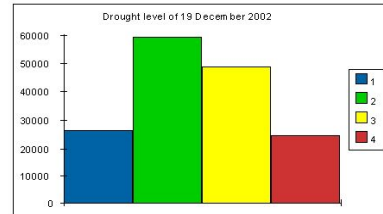
Monitoring agricultural drought using MODIS Temperature Vegetation Dryness Index in Mae Nam Chi Basin, Thailand

Dr. Nitin Kumar Tripathi and Miss Kaesorn Jumpa



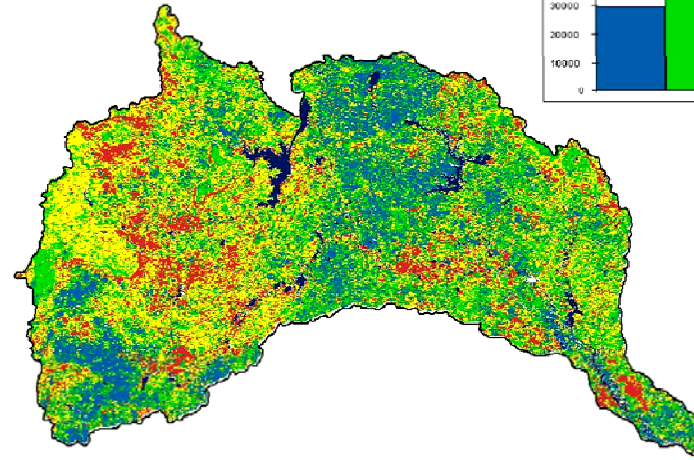
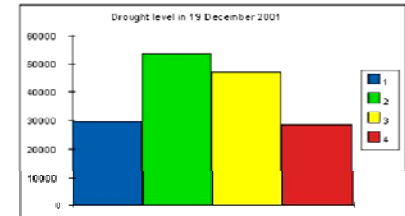
Land use / Land cover of Mae Nam Chi basin





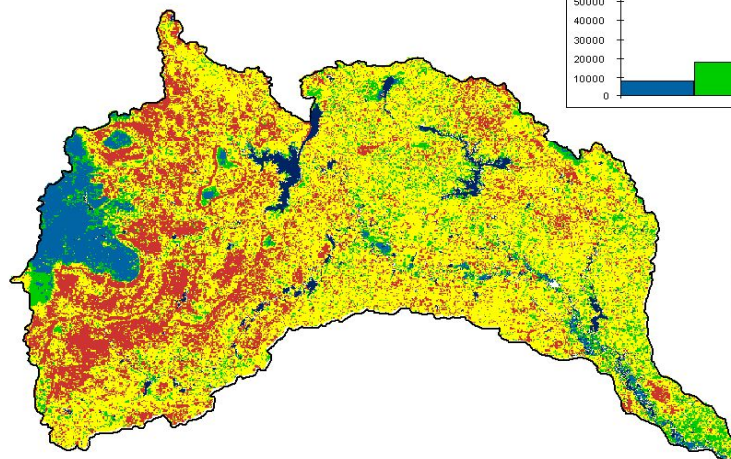
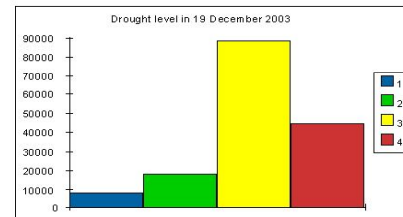
Drought risk level

- Very low
- Low
- Moderate
- High



Drought risk level

- Very low
- Low
- Moderate
- High



Drought risk level

- Very low
- Low
- Moderate
- High



Development of Flood Warning System



Ms. Farah Aziz, Dr. Nitin Tripathi,
Dr. Mark Ole and Dr. Michiru Kusanagi

Asian Institute of Technology

Bangkok, Thailand

Tel: 66-2-5246392; Fax: 66-2-5245597

nitinkt@ait.ac.th;

A Dynamic GIS Based Flood Warning System

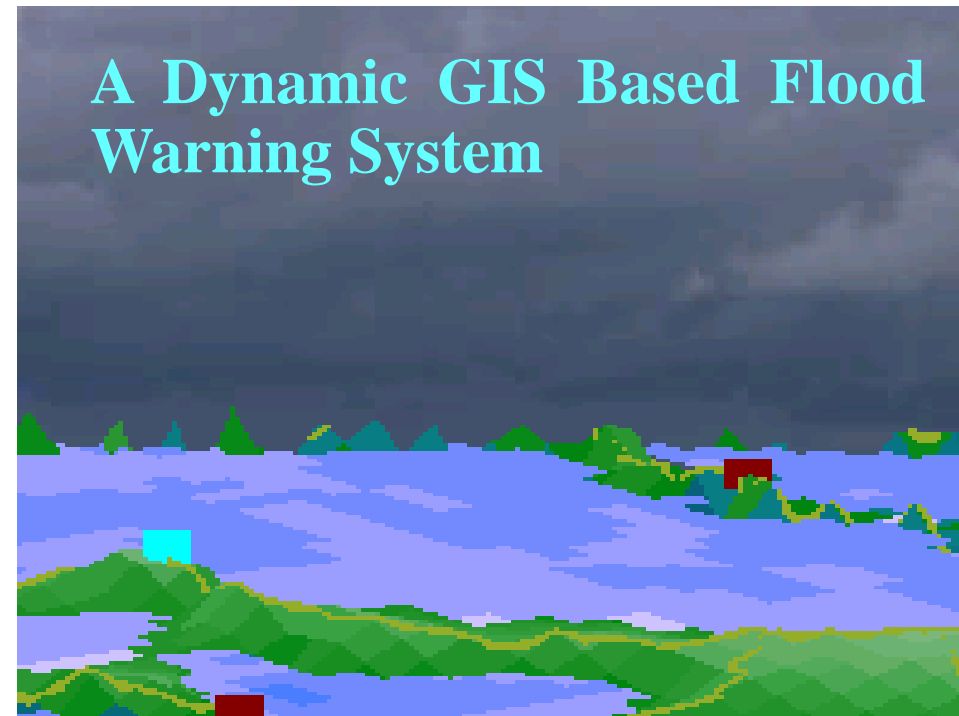
Maps

MIKE 11 Results

Warning System

Evacuation System

3D Visualization



A Dynamic GIS Based Flood Warning System



Study area
Sunderganj Thana

By Farah Aziz

Committee members

Dr. Nitin Kumar Tripathi (Chairman)

Dr. Ole Mark (Co-Chairman)

Dr. Michiro Kusanagi (Member)

Mr. A.N. M. Akhter Hossain (Member)



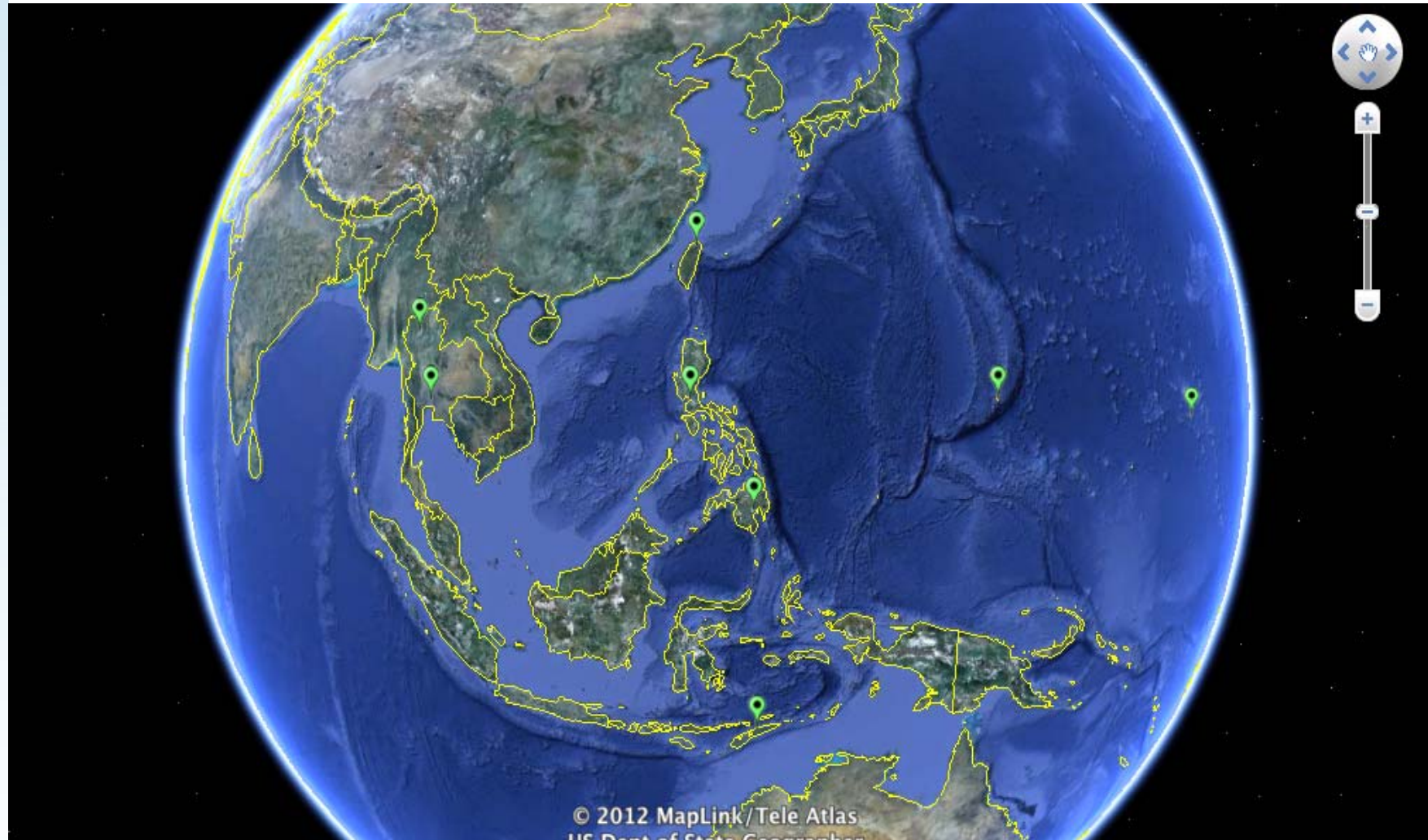
GPS-SCINDA STATIONS in THAILAND

NITIN TRIPATHI

Remote Sensing and Geographic Information System
Asian Institute of Technology



Current Site (Updated 02/2012)



SCINDA Sensor Suite



Dual Frequency GPS Antenna



VHF SATCOM Receiver

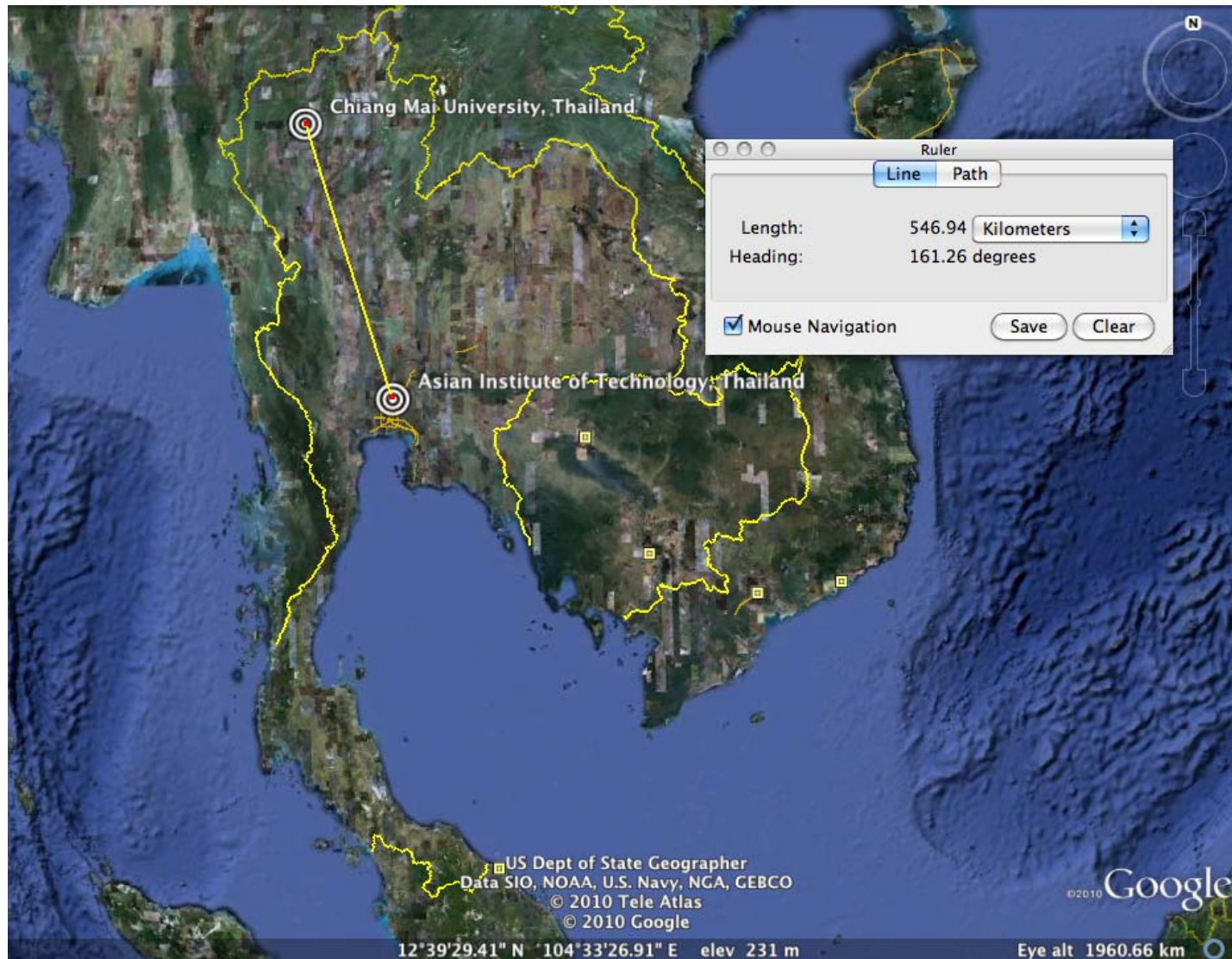


Dual Frequency GPS Receiver

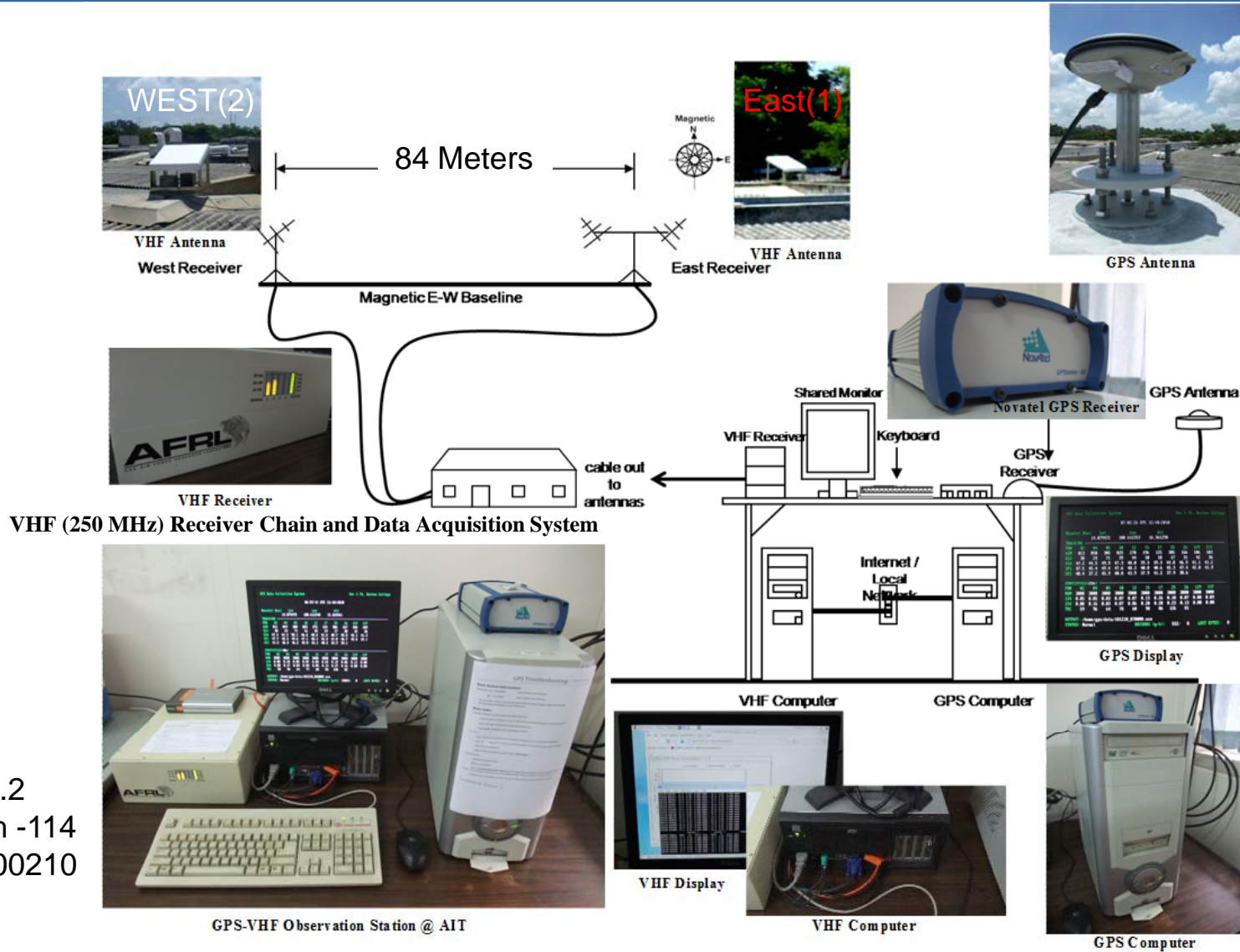


VHF Antenna

Location of GPS-SCINDA in Thailand



SCINDA STAION in AIT



Elev 53.2
Azimuth -114
SatNo 00210

GPS-VHF Observation Station @ AIT

SCINDA STAION in Chiang-Mai University



VHF Machine



GPS

```
Racoruss-MacBook-Pro:~ Racoruss$ ssh root@202.28.25.24
root@202.28.25.24's password:
Linux scinda 2.6.26-2-686 #1 SMP Sun Jun 21 04:57:38 UTC 2009 1686

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Sun Dec 18 23:35:37 2011 from ppp-58-11-82-12.revip2.asianet.co.th
scinda:~# ls
Desktop          cnx-vhf-scinda-backup.tgz  savjlu-install.log
cnx-vhf-data0-backup.tgz  sav-install.log           savui-install.log
scinda:~# cd ..
scinda:~# ls
bin  data0  home
boot dev  initrd.i
cdrom etc  lib
scinda:~# cd data0
scinda:/data0# ls
100713_090650_CNK.svi.
100713_092858_CNK.svi.
100713_095259_CNK.svi.
100713_105703_CNK.svi.
100713_110003_CNK.rvi
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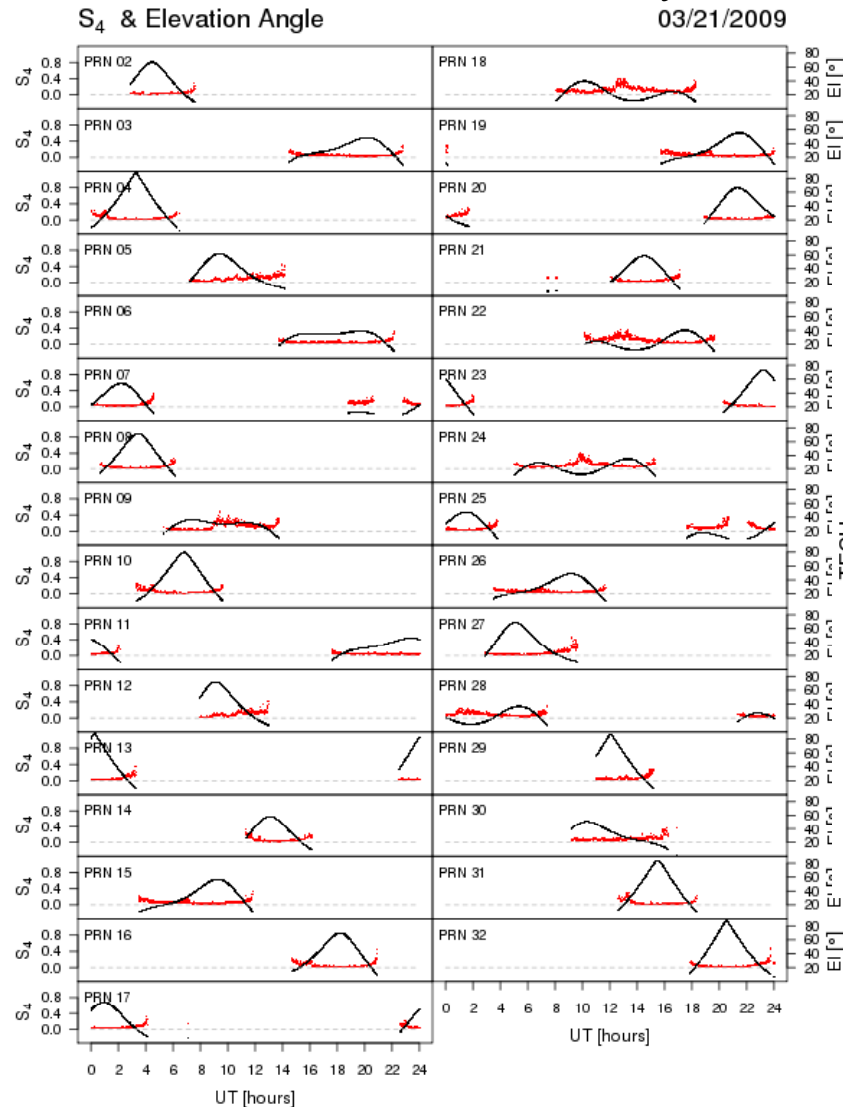
SCINDA Ionospheric Parameter Measurements

Real-time output from SCINDA sensors includes:

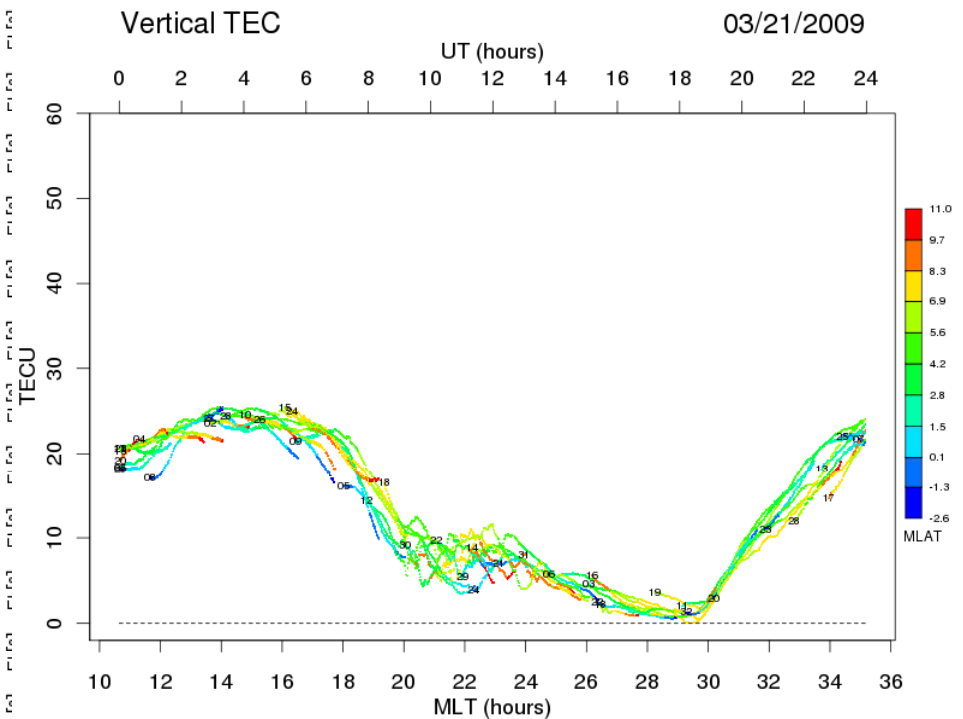
- VHF (250 MHz) & GPS scintillation parameters
 - S4 scintillation index
 - Intensity spectrum
 - Fading probability density function
 - Temporal de-correlation of intensity
 - Data quality flags based upon parameter consistency, and reconciliation between S4 index and the fading PDF
- Ionospheric zonal drift estimates obtained from VHF spaced antenna observations
- GPS Total Electron Content (TEC) and phase scintillation data
- Raw data (10-50 Hz) can be recorded as desired

Example of Plots Generated Using WinTEC-P

GPS Scintillation Intensity



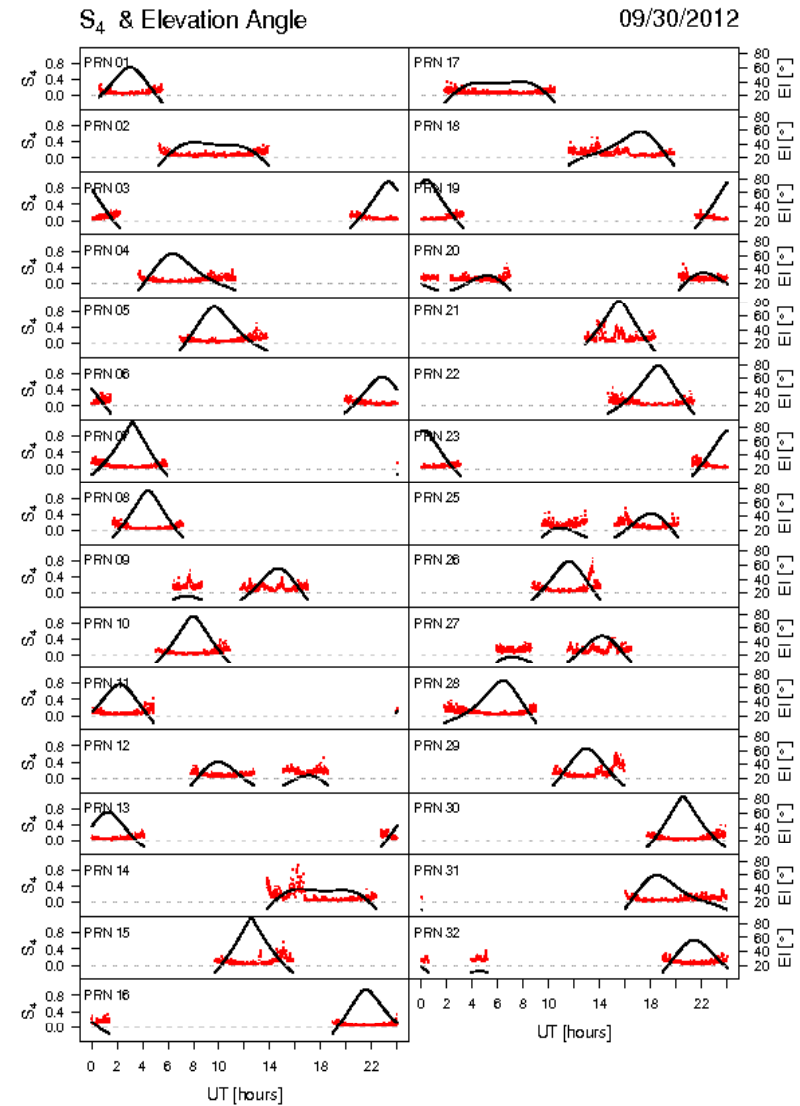
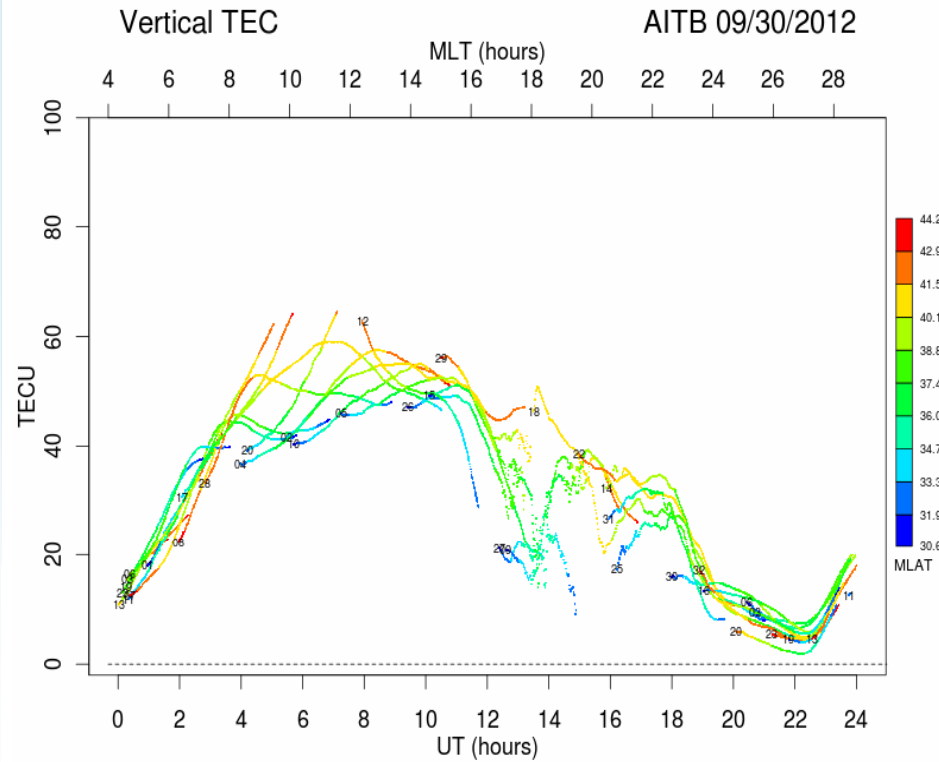
Total Electron Content



One can also generate separate plots for each satellite to see greater detail.

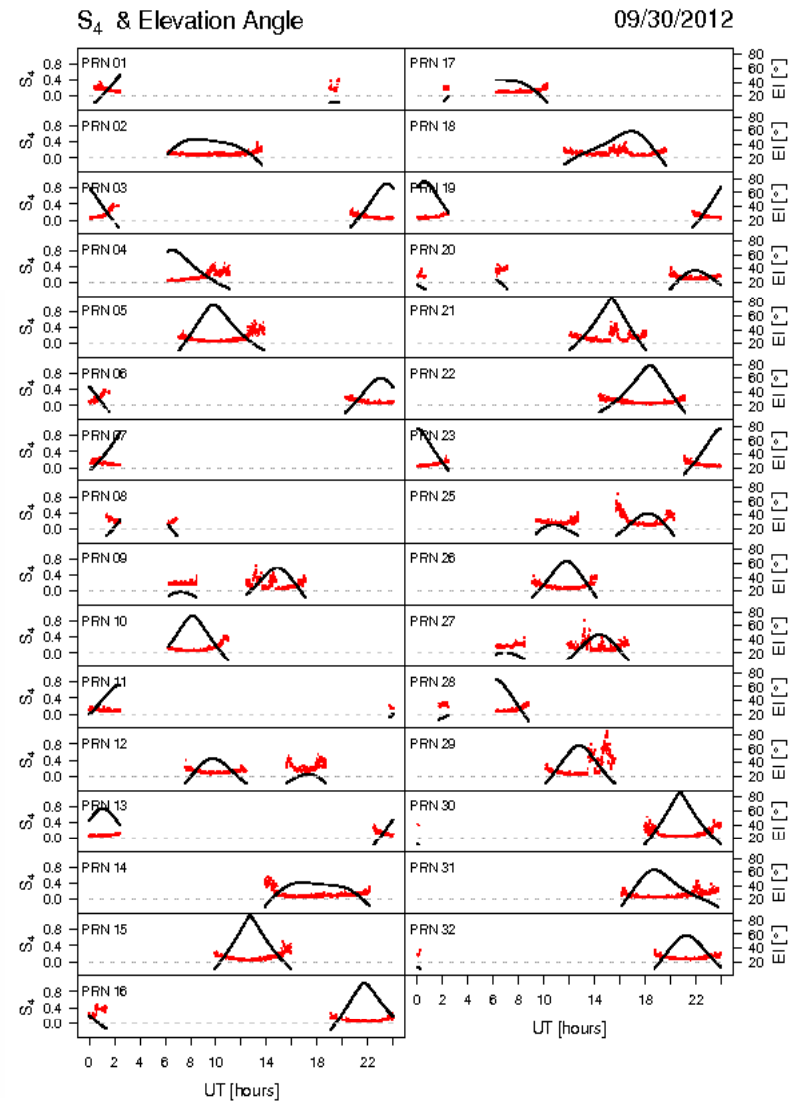
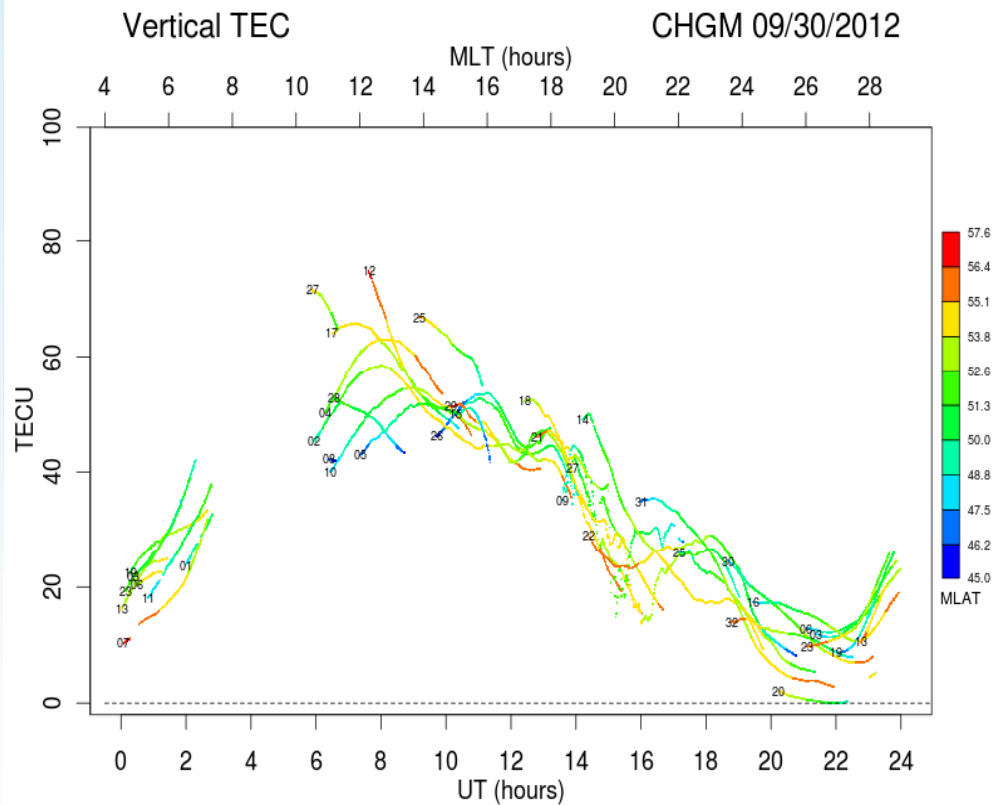
GPS-SCINDA Data Products – AIT Station

DATE: 09/30/2012 – 10/09/2012



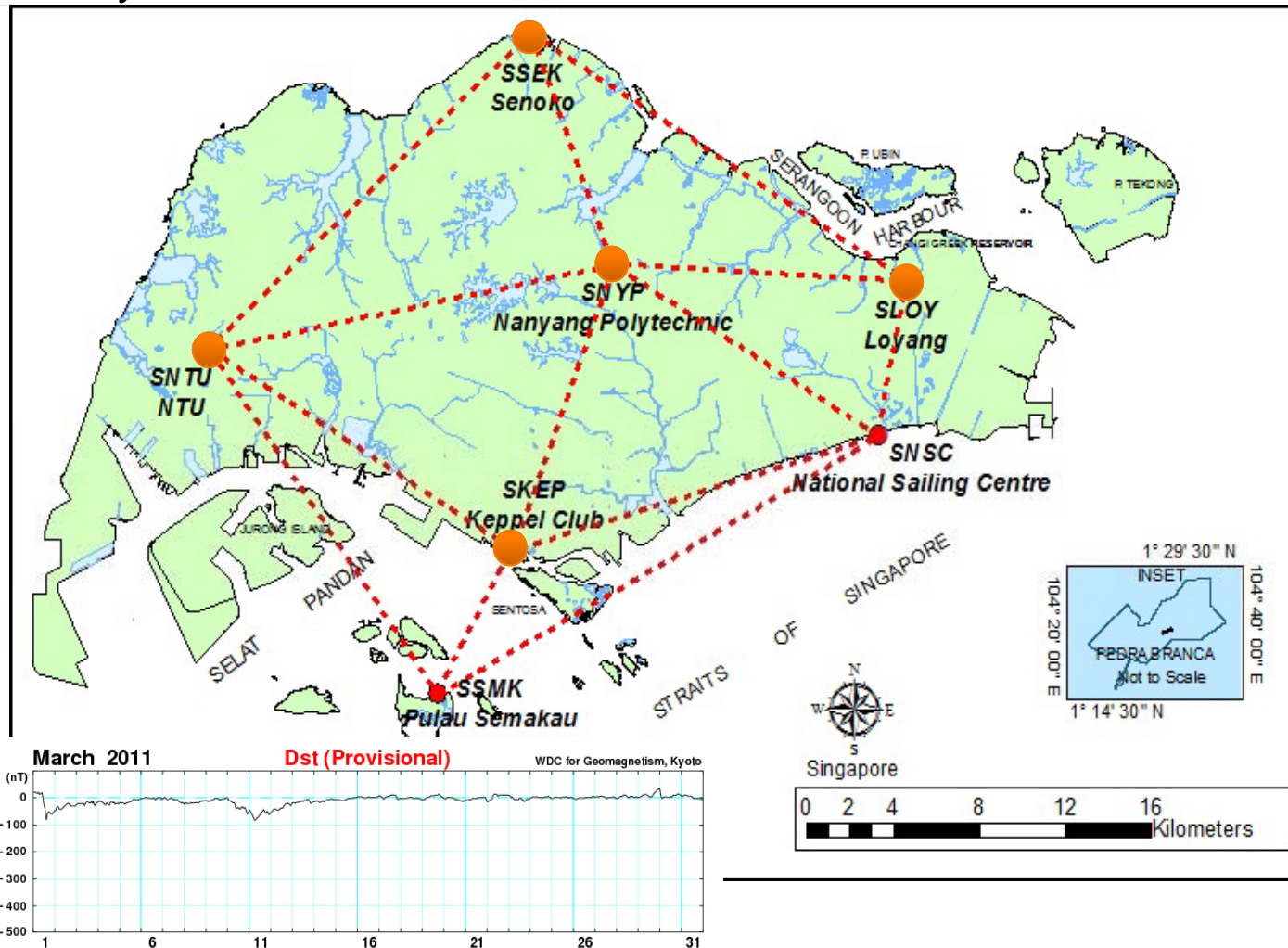
GPS-SCINDA Data Products – CHGM Station

DATE: 09/30/2012 – 10/09/2012



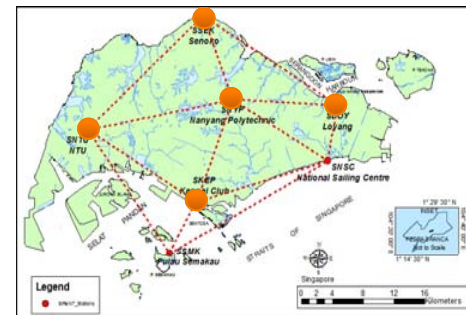
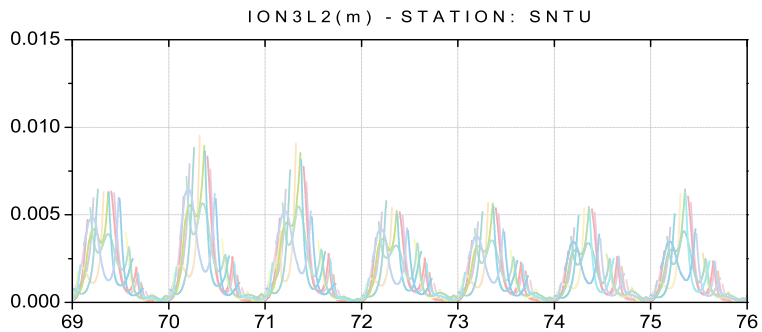
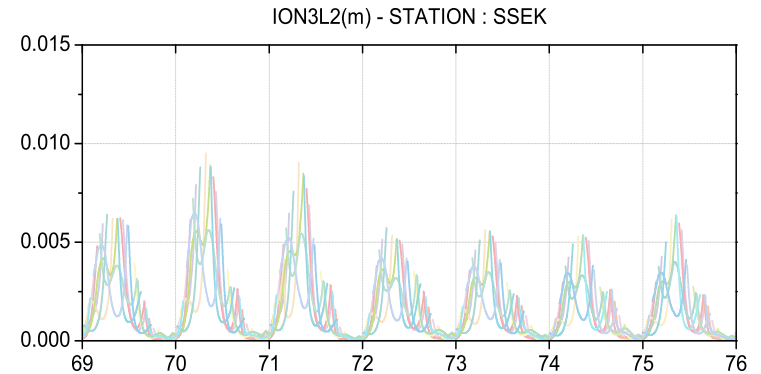
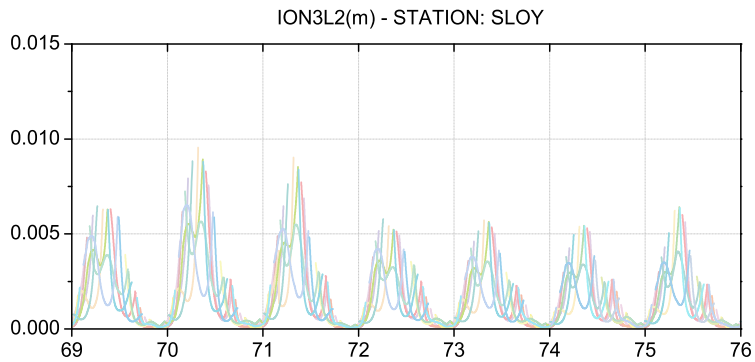
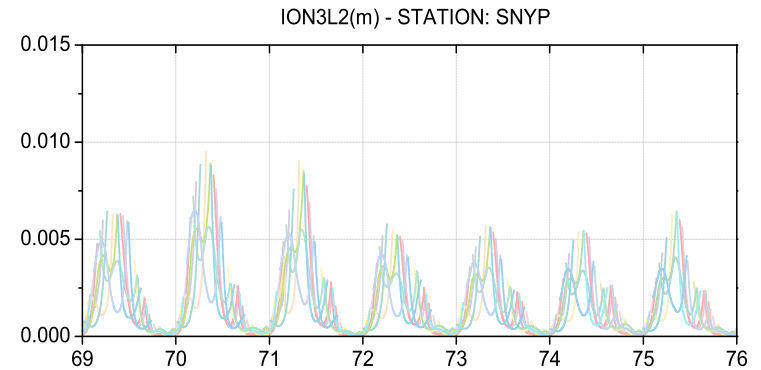
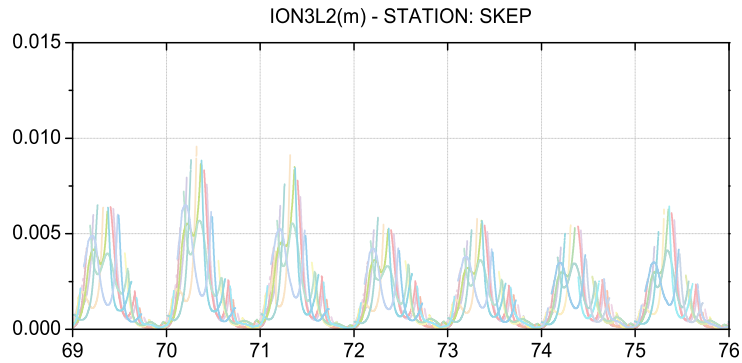
SiReNT - Singapore Satellite Positioning Reference Network

Analysis Date: 9-15 March 2011



STATION ID
 SKEP
 SNTU
 SNYP
 SLOY
 SSEC

second-order ionospheric effect on L2



9-15 March 2011

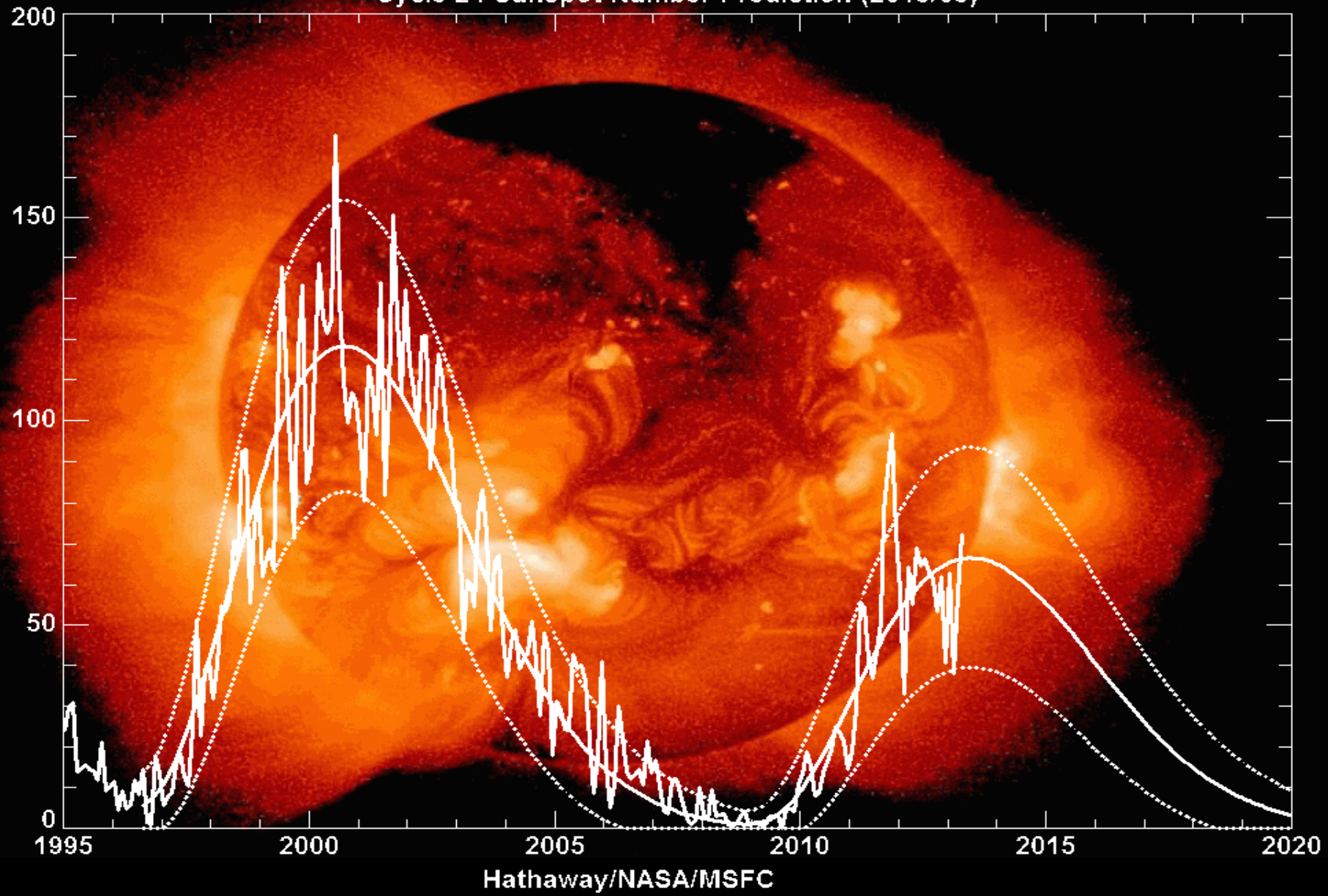
IONOSPHERIC SCINTILLATIONS DURING INCREASING SOLAR ACTIVITIES USING GPS – SCINDA STATIONS DATA

**N. K. Tripathi, Raju, D.K., V Rajesh Chowdhary
and Sanit Arunpold
Asian Institute of Technology, Thailand
+ National University of Singapore
Email: nitinkt@ait.ac.th**

Extreme Weather / Solar activities

- “**Solar flares** are sudden bursts in the intensity of solar radiation”
- “**Solar wind** is composed of particles charged with high energy that are emitted from the sun.”
- “**Coronal Mass Ejection (CME)** is a massive burst of solar wind and magnetic fields rising above the solar corona or being released into space”.
- “**Geomagnetic Storm** -disturbance of the Earth's magnetosphere caused by a disturbance in space weather.“
- “**Sunspots** - temporary phenomena on the photosphere of the Sun that appear as dark spots”

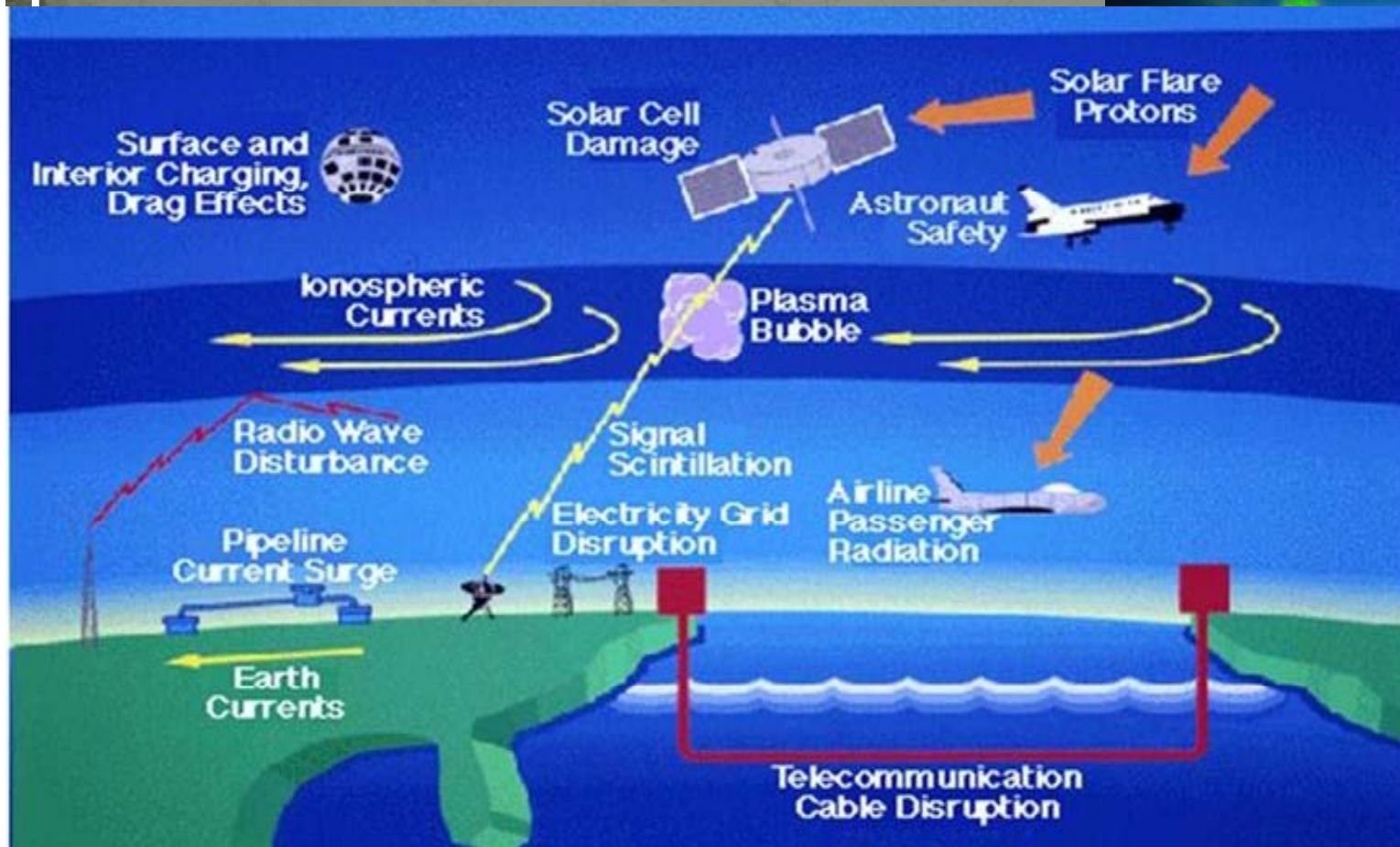
Cycle 24 Sunspot Number Prediction (2013/05)



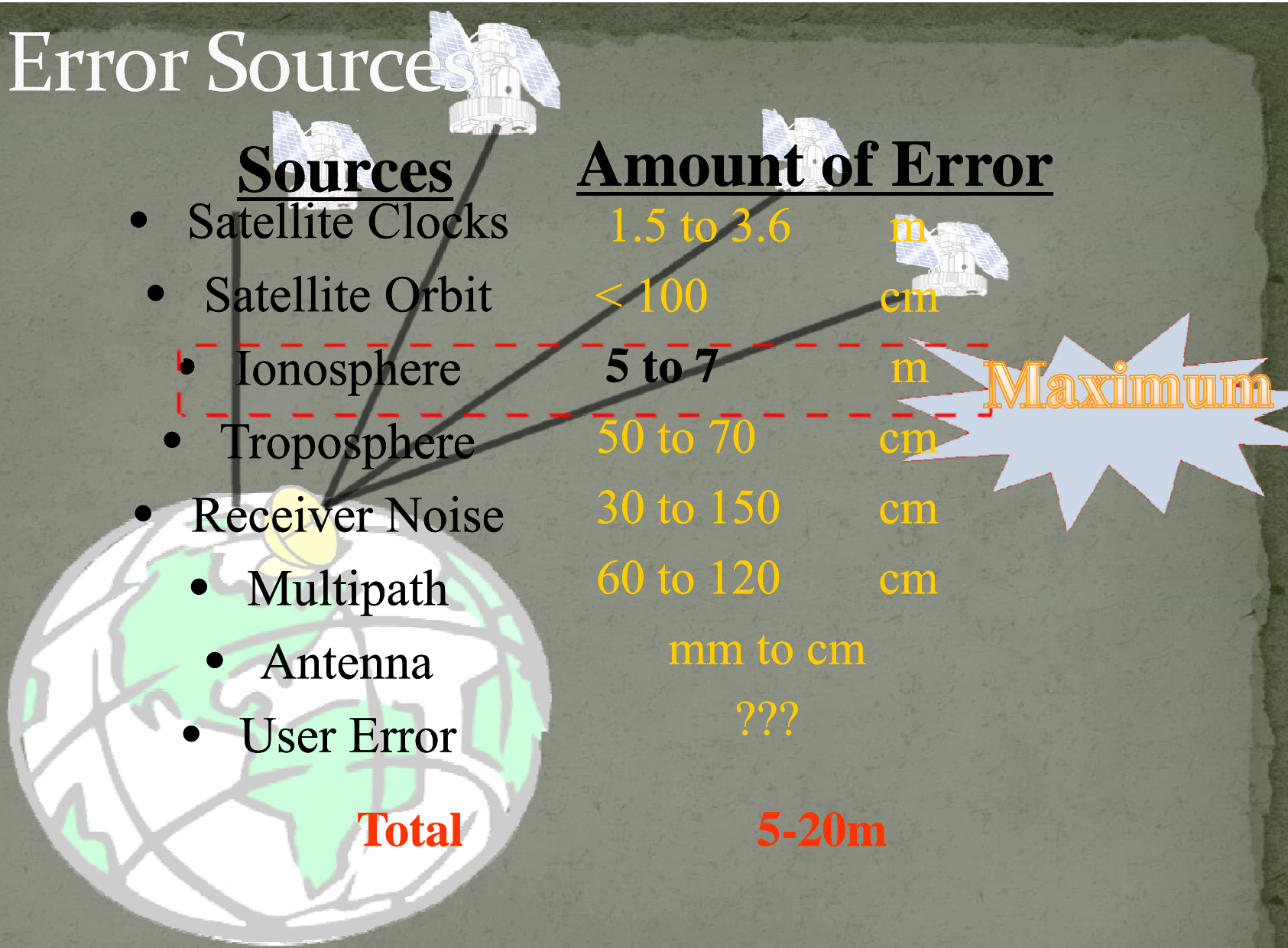
Hathaway/NASA/MSFC

Website Source: <http://solarscience.msfc.nasa.gov/predict.shtml>

Impacts on Earth



GPS Error Sources



SCINDA Hardware and Logging Data



```
Racoruss-MacBook-Pro:~ Racorus$ ssh root@202.28.25.24
root@202.28.25.24's password:
Linux scinda 2.6.26-2-686 #1 SMP Sun Jun 21 04:57:36 UTC 2009 1686

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

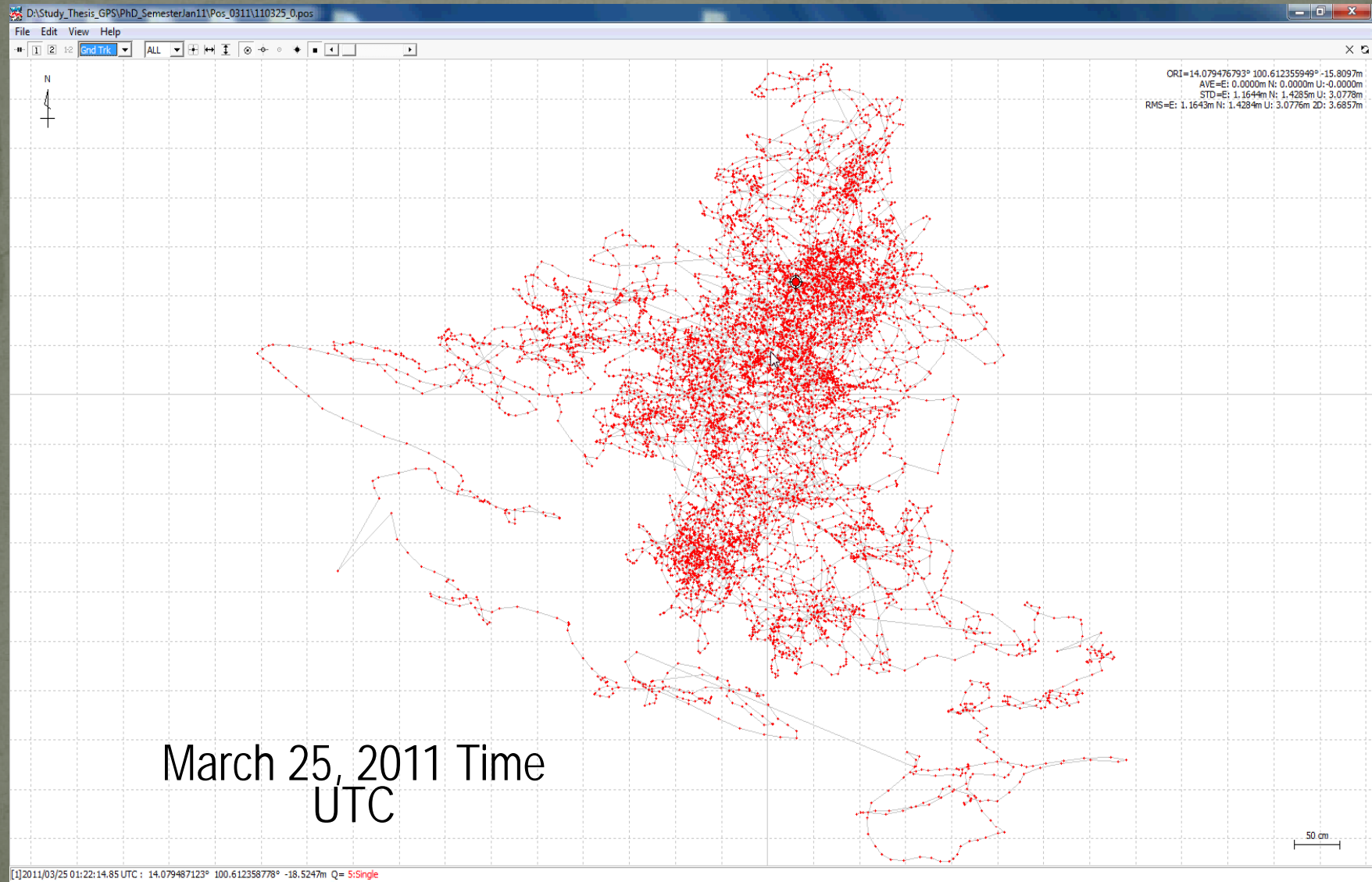
Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Sun Dec 18 23:35:37 2011 from ppp-58-11-82-12.revip2.asianet.co.th
scinda:~# ls
Desktop          cnx-vhf-scinda-backup.tgz  savjlu-install.log
cnx-vhf-data0-backup.tgz  sav-install.log           savui-install.log
scinda:~# cd ..
scinda:~# ls
bin  data0  home
boot dev  initrd.i
cdrom etc  lib
scinda:~# cd data0
scinda:~/data0# ls
100713_090650_CNX.svi.
100713_092858_CNX.svi.
100713_095259_CNX.svi.
100713_105703_CNX.svi.
100713_110003_CNX.rvi
100713_115734_CNX.svi.
100713_120034_CNX.rvi
100713_125803_CNX.svi.
100713_130103_CNX.rvi
100713_135832_CNX.svi.
100713_140132_CNX.rvi
100713_145901_CNX.svi.
100713_150201_CNX.rvi
100713_155931_CNX.svi.
100713_160231_CNX.rvi
100713_170000_CNX.svi.
100713_170300_CNX.rvi
100713_180029_CNX.svi.
100713_180329_CNX.rvi
100713_190058_CNX.svi.
100713_190358_CNX.rvi
100713_200127_CNX.svi.
100713_200427_CNX.rvi
100713_210156_CNX.svi.
100713_210456_CNX.rvi
```

```
Racoruss-MacBook-Pro:~ Racorus$ ssh gps@202.28.25.28
gps@202.28.25.28's password:
Linux debian 2.6.26-2-686 #1 SMP Wed May 12 21:56:10 UTC 2010 1686

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

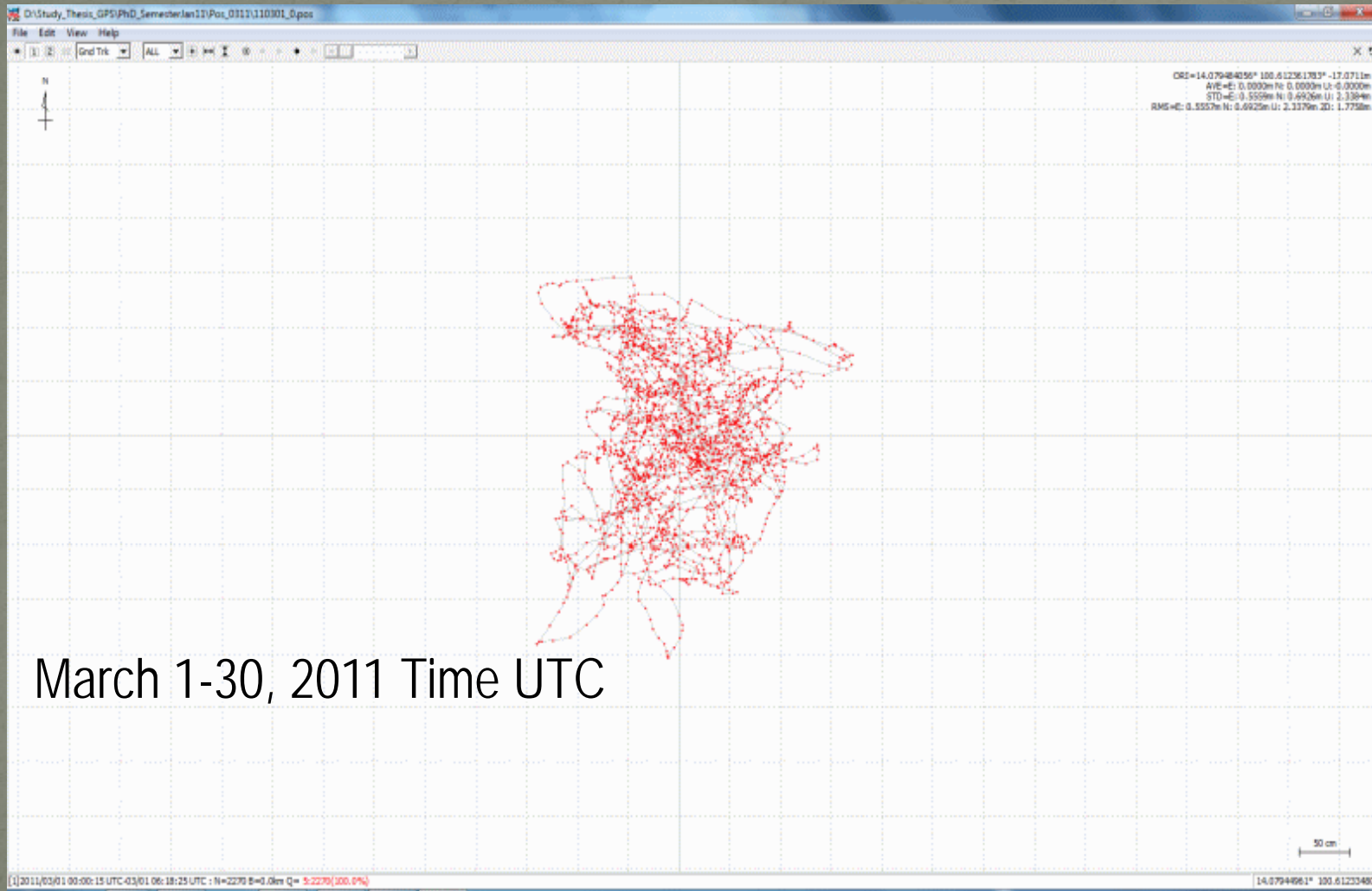
Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
You have new mail.
Last login: Sun Dec 25 05:19:56 2011 from 49.49.129.114
gps@debian:~$ ls
111224.rng      gps-control_bak      s4.r
AUTHORS        gps-control.pl       sbas.dat
COPYING        gps-process.pl       send-ftp.pl
ChangeLog      gps-run_bak          send-sftp-simple.pl
Desktop        gps-run.pl           send-sftp.pl
INSTALL        gps-scinda           serialport
MANIFEST       gps-scinda-1.76.tar.gz  serialport.doc
Makefile       gps-scinda-bundle    serialport.html
Modem.pm       gps-scinda-bundle.tar.gz  set-option.pl
NOTES          gps-scinda-src-1.76.tar.gz  set-time.pl
README         gps-scinda.doc       simulate-gps.pl
README.tec     gps-scinda.html      slip.dat
ReadConfig.pm gps-scripts-2.02.tar.gz  start-transfers
TODO           gps.conf             state.dat
TimeObj.pm    gps.conf.orig        tec.conf
VERSION       gps.conf.sample      tec.dat
archive        gps.conf~            tec.r
archive.pl    iboot.pl             test.pl
backup.sh     install              test_modem.pl
backup_05Jun08  install.log          test_readconfig.pl
backup_18Jun08  make-plots.pl        test_timeobj.pl
biases.dat    merge-crontab.pl     unset-ovatel
check-config.pl  model.dat            wintec-p
compare_biases modules              wintec-p-1.05.tar.gz
configure.log  monthly-backup.pl    wintec-p-daily.pl
configure.pl   plots                wintec-p-src-1.05.tar.gz
cov.dat       processed_data        wintec-p.conf
crontable     purge-rawdata.pl     wintec-p.conf.orig
crontable.sample  res.dat             write-cd.pl
data          reset-ovatel         write-dvd.pl
data-nova     reset-zz            xrer
deliver-data.pl  reser-zz            restart.dat
get-sftp.pl    s4.conf
gps@debian:~$ cd data
gps@debian:~/data$ ls
120101_150000.tsm  120101_210000.rng  120102_040000.msg  120102_100000.scn
```

One Day Positioning Dispersion

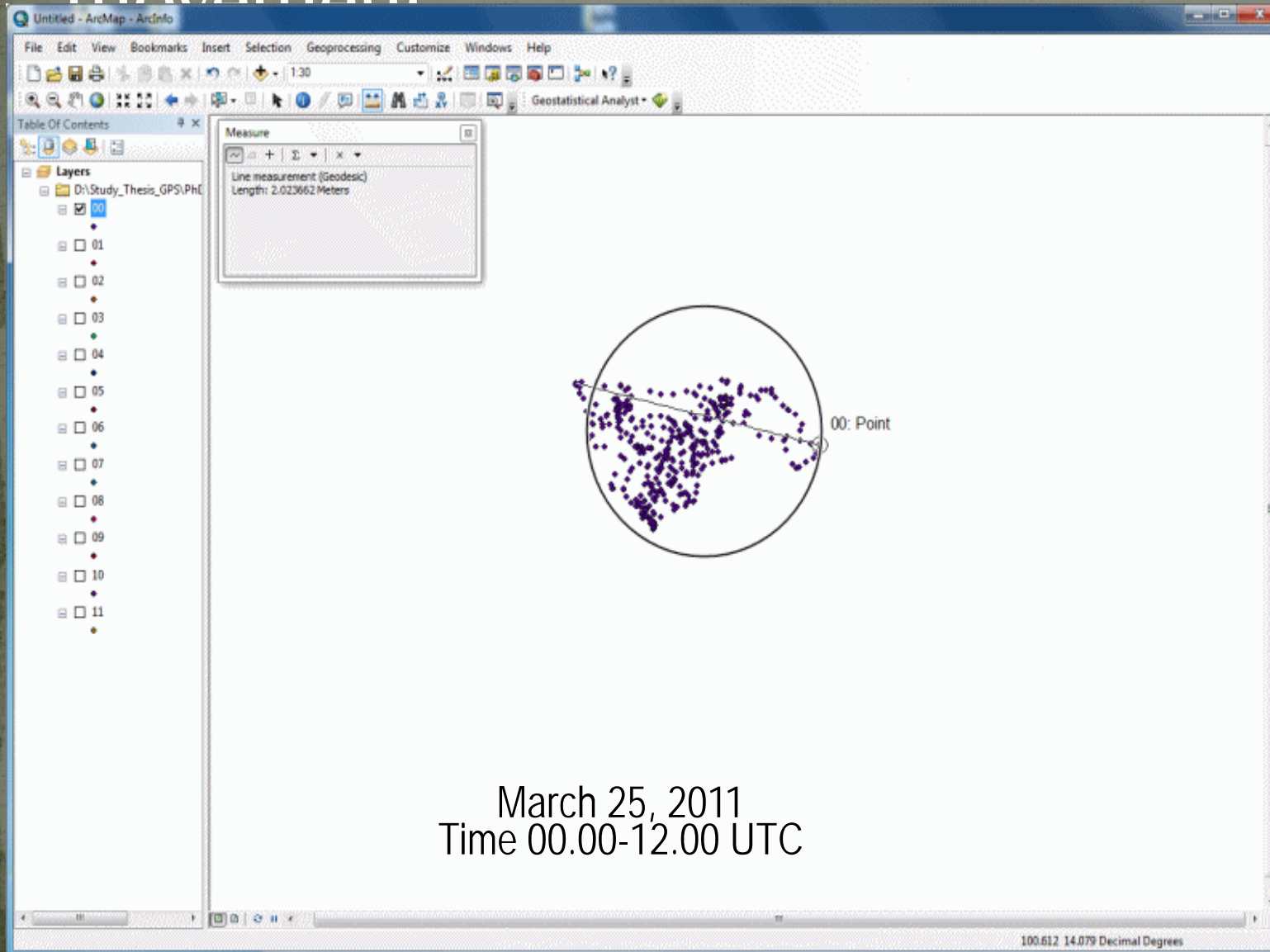


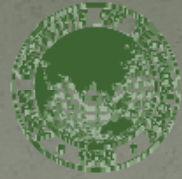
March 25, 2011 Time
UTC

Daily Positioning Dispersion on March 2011



Hourly Positioning Dispersion movement





AIT
Asian Institute of Technology

Thank You

谢谢

Dank Yu

Merci

Danke

धन्यवाद

Terima Kasih

Grazzie

ありがとう

감사합니다

ຂອບໃຈ

ขอบคุณ

Gratias tibi ago

Takk

Cảm ơn ông

cè-zù-bèh

nitinkt@ait.asia

www.ait.asia