

# **South-East Asia: Mastering Environmental Research with GEodetic Space Techniques (SEAMERGES): Kick-Off Meeting**

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## Overview Project Activities

Chulalongkorn University, March 3-5th 2004, Bangkok, Thailand

# Overview Project (1)

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- 3 Seminar & workshop (HRD) sessions given by EC participants:
  - General/processing/analysis/modeling/interpretation,
  - GPS: 5 weeks by Ir. Wim Simons/Dr. Christophe Vigny in Thailand,
  - InSAR: 3 weeks by Dr. Cecile Lassere in Malaysia,
  - SALT: 3 weeks by Ir. Marc Naeije in Indonesia,
  - 4 persons of each ASEAN partner participate in each event,
  - Hosting (+external) partner is welcome send up to 6 more persons.
- 3 Multi-disciplinary (CAR) GPS/InSAR/SALT projects:
  - Subject of importance to ASEAN partners, joint effort by all partners,
  - Each ASEAN partner has 2-4 persons (+ext.) working on each project,
  - GPS field demo in Thailand (10 days, incl.1 person Mal./Ind. each),
  - 3 persons of each ASEAN partner make a work visit in ASEAN (14 days),
  - 1 person of each ASEAN partner makes a work visit to Europe (1 month),
  - 3 EC participants make extra visit to 1 ASEAN partners (14 days)

*“Promote EU-ASEAN and intra ASEAN co-operation in the higher education sector”*

# Overview Project (2)



## ● Planned activities, locations and dates:

– Official start SEAMERGES	All	January 2004
– Master PC system operational	Netherlands	April 2004
– PC system operational	Thailand	Before May 2004
– GPS seminar/workshop sessions	Thailand	May 2004
– PC system operational	Malaysia	Before July 2004
– InSAR seminar/workshop session	Malaysia	July 2004
– PC system operational	Indonesia	Before August 2004
– SALT seminar/workshop session	Indonesia	August 2004
– Start 3 (CAR) projects	All	September 2004
– GPS field experiment	Thailand	October 2004
– Work visits to EU/ASEAN	-	Until October 2005
– Official end SEAMERGES	All	January 2006

## ● Planned meetings, locations and dates:

– Kick-off meeting (2 p. each)	Thailand	March 2004
– 1st progress meeting (3 p. each)	Malaysia	January 2005
– 2nd progress meeting (3 p. each)	Indonesia	June 2005
– Final Symposium (5 p. each)	Thailand/Malaysia	November 2005
– Final Report	All	Before January 2006

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Proposed Multi-Disciplinary (CAR) Research Projects

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# Multi-Disciplinary (CAR) Research Projects (1)

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- 3 multi-disciplinary (CAR) Research Projects proposed:
  - Monitoring of land subsidence for major regional cities using GPS/InSAR/SALT,
  - Study of regional crustal deformations and tectonic block motions, including environmental risk to densely populated areas using GPS/InSAR/SALT,
  - Satellite altimetry as an operational observational system for navigational, climatic, and commercial applications. Includes altimetry, in situ and GPS data.
- Importance of each project:
  - Set-up, expand and scientific exploitation of GPS, InSAR and SALT databases,
  - Common applied research by EU and ASEAN partners,
  - Well-established and sustainable mutual beneficiary co-operations,
  - Apply EU->ASEAN transferred knowledge/expertise/associated technologies,
  - Raise awareness of the importance of co-operation on complex scientific topics,
  - Provide intermediate progress reports to partners and the general public,
  - Independent and applied state-of-the-art GPS, InSAR and SALT processing, analysis and interpretation by each of the ASEAN partners

*“Success/benefit of each project is important to all SEAMERGES partners”*

# Multi-Disciplinary (CAR) Research Projects (2)

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- Expected output of projects (during/after SEAMERGES):
  - Accurate and reliable land-subsidence rates for Bangkok/Jakarta/Kuala Lumpur that can be taken into account for future civil and industrial development projects,
  - Enable comparison of the results for each of the major cities studies.
  
  - Obtain highly accurate geodetic GPS velocities for dense GPS point networks,
  - Unprecedented and uniform kinematic models spanning ASEAN countries,
  - Identify regions that can pose significant natural hazards for the population,
  - Identify and quantify crustal deformation zone, block motions and active faults.
  
  - Tailor-made altimeter data base system for operational use in the region,
  - Availability of value-added products,
  - Improved ocean tide modelling/prediction.
- Use co-operation to continue and set-up new projects after 2005.
  - Inter-ASEAN,
  - ASEAN-EC,
  - Partnership on an equal basis,
  - Increased international visibility/recognition.

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**GPS workshop/seminar sessions**

by

Ir. Wim Simons (DEOS/DUT, Netherlands)  
(GPS data collection/processing/analysis)

and

Dr. Christophe Vigny (ENS, France)  
(GPS results interpretation and modeling)

Chulalongkorn University, March 3-5th 2004, Bangkok, Thailand

- Transfer GPS knowledge/experience/software to ASEAN participants:
  - Seminar/Lectures 1
    - *Geodetic GPS (general),*
    - *Using GPS data to compute point positions with millimetre accuracy,*
    - *Establishing GPS network in a common reference frame,*
    - *Building point coordinate time series to estimate point velocities.*
  - Seminar/Lectures 2
    - *Interpret GPS results,*
    - *Use of GPS coordinate time series to detect network deformation,*
    - *Determine overall (relative) network motion,*
    - *Geophysical modeling using GPS derived velocity vector fields.*
  - Workshops 1 and 2
    - *Design/monumentation of high-precision GPS networks,*
    - *Collection required (GPS-related) data to process a S.E. Asia network*
    - *Process/analyze GPS data of regional network using GIPSY/GAMIT,*
    - *Map a GPS network in a common (ASEAN/global) reference frame,*
    - *Compute velocity estimates,*
    - *Estimate block/fault motions,*
    - *Geophysical modeling using GPS velocity estimates with various softwares,*