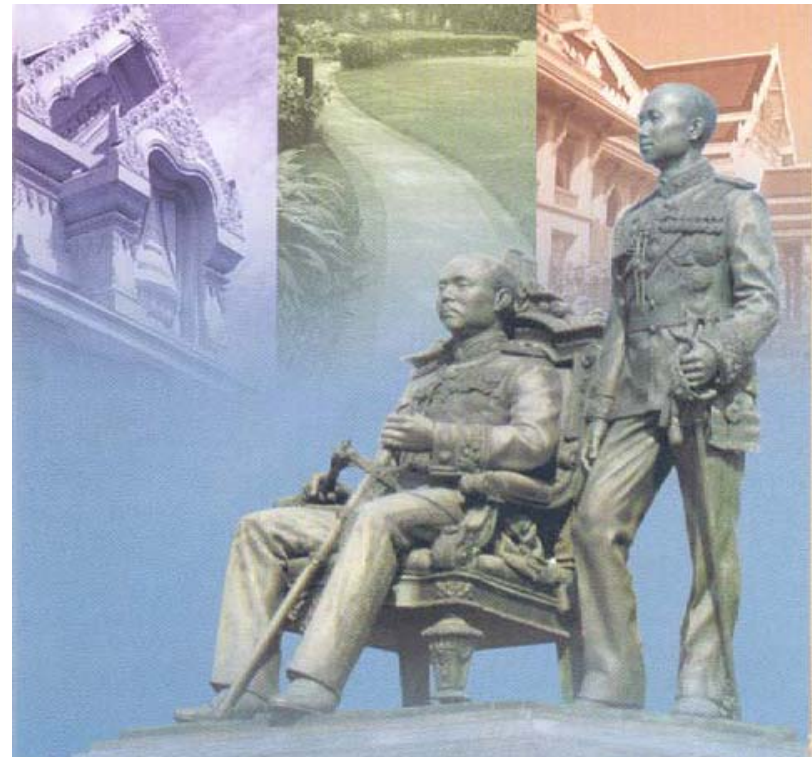




Chulalongkorn University

Chulalongkorn University

- Established in 1916 by King Rama VI
- First university in Thailand
- Engineering is one of the first three faculties.





Mission Statement

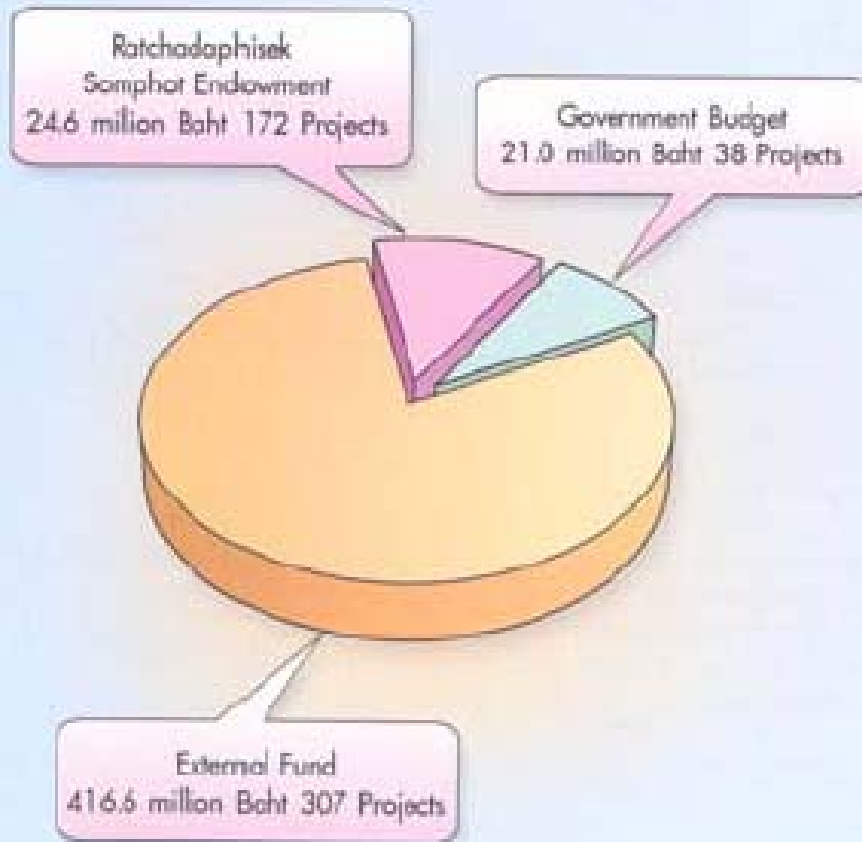
1. Produce graduates of international caliber with knowledge and skills appropriate to the needs of society.
2. Instill high ethical standards in students and develop their leadership capabilities.
3. Create new bodies of knowledge with applications that benefit Thai society.
4. Preserve the arts and culture.



Facts & Figures

- 18 Faculties
- 12 academic and research institutes
- ~1900 faculty members
- ~1300 staff
- ~28,000 students

Research Funds 2001



Academic Services for Society

- Faculties/Other Institutes 422 Projects
- Semi-Cooperative Functional Group 206 Projects



Faculty of Engineering



12 Departments in Faculty of Engineering

- Civil Engineering
- Electrical Engineering
- Mechanical Engineering
- Industrial Engineering
- Chemical Engineering
- Mining and Petroleum Engineering
- Environmental Engineering
- Survey Engineering
- Metallurgical Engineering
- Computer Engineering
- Nuclear Technology
- Water Resource Engineering



Department of Survey
Engineering



Brief History : Department of Survey Engineering, CU

- Established in 1955
- Master degree in survey engineering was offered in 1979.
- Master degree in spatial information system was offered in 1999.



Personnel

- Teaching staffs
 - 2 associate professors
 - 6 assistant professors
 - 4 lecturers
- Supporting staffs
 - 7 staffs



Budget for 2003 Fiscal Year

- from government
 - 4.675 million baht
- from university revenue
 - 1.566 million baht



Curriculum

- B. Eng. in survey engineering (4-year)
- M. Eng. in survey engineering (2-year)
- M. Sc. in spatial information system (2-year)

- Ph.D. in geomatic engineering will be offered in 2005.



Students

	Recruited			Graduated	
	2001	2002	2003	2001	2002
B.Eng.	26	25	25	18	18
M.Eng.	11	17	8	6	6
M.Sc.	8	4	5	2	3



Activities on GPS Survey

- Satellite Surveying being offered as required course in B.Eng. curriculum since June 1994.
- GPS surveying being offered as 1-week training course to public since May 1995.
- First GPS control network was implemented in topographic mapping for Bangkok Metropolitan Administration by the department.



Publications

- Chugiat Wichiencharoen, "GPS Surveying in Bangkok Metropolitan Area", Paper presented at the 5th Southeast Asian and 36th Australian Surveyors Congress, Singapore, 16-20 July, 1995.
- C. Wichiencharoen and C. Satirapod, "Accuracies Obtainable from Commercial GPS Hardware and Software", Thailand Engineering Journal, Vol.50 No.10, pp65-68, Bangkok, October 1997.
- Wichiencharoen, C., N. Ratanakarn and P. Wongkoet, "Development of a Transformation Strategy to Convert from Local Datums into a Regional System", Submitted to The Fourth Meeting of The Permanent Committee on GIS Infrastructure for Asia and the Pacific, Tehran, Islamic Republic of Iran, February 28-March 4, 1998.
- Chugiat Wichiencharoen, "Orthometric Heights from GPS: Experience of Thailand", Paper presented at 3rd International Symposium on GPS Technology, Tainan, Taiwan, 10-11 November, 1998.

Publications

(Dr. Chalermchon's)

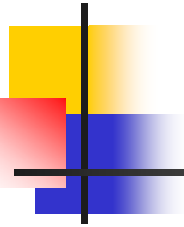


Book

1. **Satirapod, C.** (2003) Getting Started with GPS Surveying (Translated to Thai), CU press, Bangkok, Thailand, ISBN 974-13-2659-9, 156 pp.

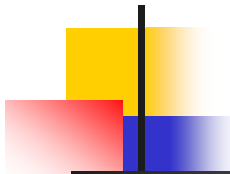
Journal and Proceeding

1. Wichiencharoen C. and **Satirapod, C.** (1997) Accuracies obtainable from commercial GPS hardware and software, *Thailand Engineering Journal*, October.
2. **Satirapod, C.**, Rizos, C. and Han, S. (1999) GPS single point positioning: An attractive alternative?, *4th International Symposium on Satellite Navigation Technology & Applications*, Brisbane, Australia, 20-23 July, paper 47.
3. Rizos, C., **Satirapod, C.**, Chen, H. and Han, S. (1999) GPS with multiple reference stations: surveying scenarios in metropolitan areas, *6th South East Asian Surveyors Congress*, Fremantle, Australia, 1-6 November, 37-49.
4. **Satirapod, C.**, Wong, K. and Rizos, C. (2000) A web-based automated GPS processing system, *2nd Trans Tasman Survey Congress*, Queenstown, New Zealand, 20-26 August, 131-140.
5. **Satirapod, C.** and Wang, J. (2000) Comparing the quality indicators of GPS carrier phase observations, *Geomatics Research Australasia*, 73, 75-92.
6. **Satirapod, C.**, Rizos, C. and Wang, J. (2001) GPS single point positioning with SA off: How accurate can we get?, *Survey Review*, 36(282), 255-262.



7. Rizos, C. and **Satirapod, C.** (2001) GPS with SA off: How good is it?, *Measure & Map*, 12, 19-21.
8. **Satirapod, C.** (2001) Improving the accuracy of static GPS positioning with a new stochastic modelling procedure, *14th International Technical Meeting of the Satellite Division of the U.S. Inst. of Navigation*, Salt Lake City, Utah, 11-14 September.
9. **Satirapod, C.**, Wang, J. and Rizos, C. (2001) A new stochastic modelling procedure for precise static GPS positioning, *Zeitschrift fur Vermessungswessen*, 126(6), 365-373.
10. **Satirapod, C.**, Ogaja, C., Wang, J. and Rizos, C. (2001) GPS analysis with the aid of wavelets, *5th International Symposium on Satellite Navigation Technology & Applications*, Canberra, Australia, 24-27 July, paper 39.
11. Rizos, C. and **Satirapod, C.** (2001) Differential GPS: How good is it now?, *Measure & Map*, 15, 28-30.
12. **Satirapod, C.**, Ogaja, C., Wang, J. and Rizos, C. (2001) An approach to GPS analysis incorporating wavelet decomposition, *Artificial Satellites*, 36(2), 27-35.
13. **Satirapod C.**, Wang J. and Rizos C. (2001) Modelling residual systematic errors in GPS positioning: Methodologies and comparative studies, *IAG Scientific Meeting*, Budapest, Hungary, 3-8 September.
14. Wang, J., **Satirapod, C.**, and Rizos, C. (2002) Stochastic assessment of GPS carrier phase measurements for precise static relative positioning, *Journal of Geodesy*, 76(2), 95-104.

- 
-
15. **Satirapod, C.**, Wang, J. and Rizos, C. (2002) A simplified MINQUE procedure for the estimation of variance-covariance components of GPS observables, *Survey Review*, 36(286), 582-590.
 16. **Satirapod, C.** (2002) The New Civilian GPS Frequency and the Removal of SA: What benefits can we get?, *Journal of Remote Sensing and GIS Association of Thailand (in thai)*, 2(3), 33-39.
 17. **Satirapod C.** (2002) Recent Trends and Applications in GNSS Technology, *Journal of Remote Sensing and GIS Association of Thailand (in thai)*, 3(1), 23-28.
 18. **Satirapod, C.** (2002) GPS Education at Chulalongkorn University, Thailand, *GIS Development*, 6(8), 35-36.
 19. **Satirapod C.** (2002) Quality Control for GPS Surveying, National Conference on Mapping and Geo-Informatics 2002 (in thai), Bangkok, Thailand. 18-20 December.
 20. **Satirapod C.**, Trisirisatayawong I., and Homniam P. (2003) Establishing Ground Control Points for High-Resolution Satellite Imagery Using GPS Precise Point Positioning, The IEEE International Geoscience and Remote Sensing Conference 2003 (IGARSS 2003), Toulouse, France. 21-25 July.
 21. Musa T.A., Wang J., Rizos C., and **Satirapod C.** (2003). Stochastic Modelling for Network-Based GPS Positioning, The 6th International Symposium on Satellite Navigation Technology Including Mobile Positioning & Location Services, Melbourne, Australia, 22-25 July.

- 
22. **Satirapod, C.**, Wang, J. and Rizos, C. (2003) Comparing different GPS data processing techniques for modelling residual systematic errors, *Journal of Surveying Engineering (ASCE)*, 129(4), 129-135.
 23. **Satirapod C.**, Khoonphool R., and Rizos C. (2003). Multipath Mitigation of Permanent GPS Station Using Wavelets, International Symposium on GPS/GNSS 2003, Tokyo, Japan, 15-18 November.
 24. **Satirapod C.** (2003) Comparison of Internet-based GPS Processing Services, National Conference on Mapping and Geo-Informatics 2003 (in thai), Bangkok, Thailand. 18-20 November.
 25. Khoonphool R. and **Satirapod C.** (2003) Reduction of Multipath Effect at GPS Base Station with the Use of Wavelets, National Conference on Mapping and Geo-Informatics 2003 (in thai), Bangkok, Thailand. 18-20 November.
 26. Homniam P. and **Satirapod C.** (2003) Comparing the Interpolation Methods of GPS Satellite Position, National Conference on Mapping and Geo-Informatics 2003 (in thai), Bangkok, Thailand. 18-20 November.
 27. Chalermwattanachai P. and **Satirapod C.** (2003) Comparative Study of Using Different Standard Troposphere Models for Baseline Processing in Thailand, National Conference on Mapping and Geo-Informatics 2003 (in thai), Bangkok, Thailand. 18-20 November.
 28. **Satirapod C.** and Rizos C. (2003) Multipath Mitigation By Wavelet Analysis for GPS Base Station Applications, *Accepted for publication in Survey Review*.
 29. **Satirapod C.** and Homniam P. (2003) GPS Precise Point Positioning Software for Ground Control Point Establishment in Remote Sensing Applications, *Submitted to Journal of Surveying Engineering (ASCE)*.



GPS Equipment

- Set of 3 TRIMBLE ST receivers with TRIMVEC software.
- Set of 3 LEICA System 300 receivers with SKI software.
- Set of 6 LEICA System 500 receivers with SKI Pro software.
- 20 SILVA Multi Navigator receivers with Global Map Planner software.
- BERNESE software version 4.0.



Activities on Radar Technology (Dr. Phisan Santitamnont)

- Doctoral Thesis at University of Hannover: “Interferometric SAR Processing for Topographic Mapping”, Dipl.-Ing. Phisan Santitamnont, 1998
- Lecture notes to: the Royal Thai Survey Department, Royal Thai Air Force, Thai ESRI User Conference 2000
- Doctor Thesis support
- Cooperation with Department of Geoscience, Osaka City University
- Evaluation and Utilization of SRTM derived products
- Experiences with several packages : ERDAS-radar/ifsar, EarthView Atlantis, Gamma-software

DINSAR for Land Subsidence (2002-2004)

Derivation of Land Subsidence Movement Map for Bangkok Metropolitan Area by Means of Differential InSAR

Subsidence Map > 10 PS/SqKm at Accuracy of millimeter

Prof. Dr. Wladyslaw Altermann

University of Munich



Dr. Harald Mehl German Aerospace Center



Dr. Phisan Santitamnont Dept. of Survey Engineering, Chula Univ

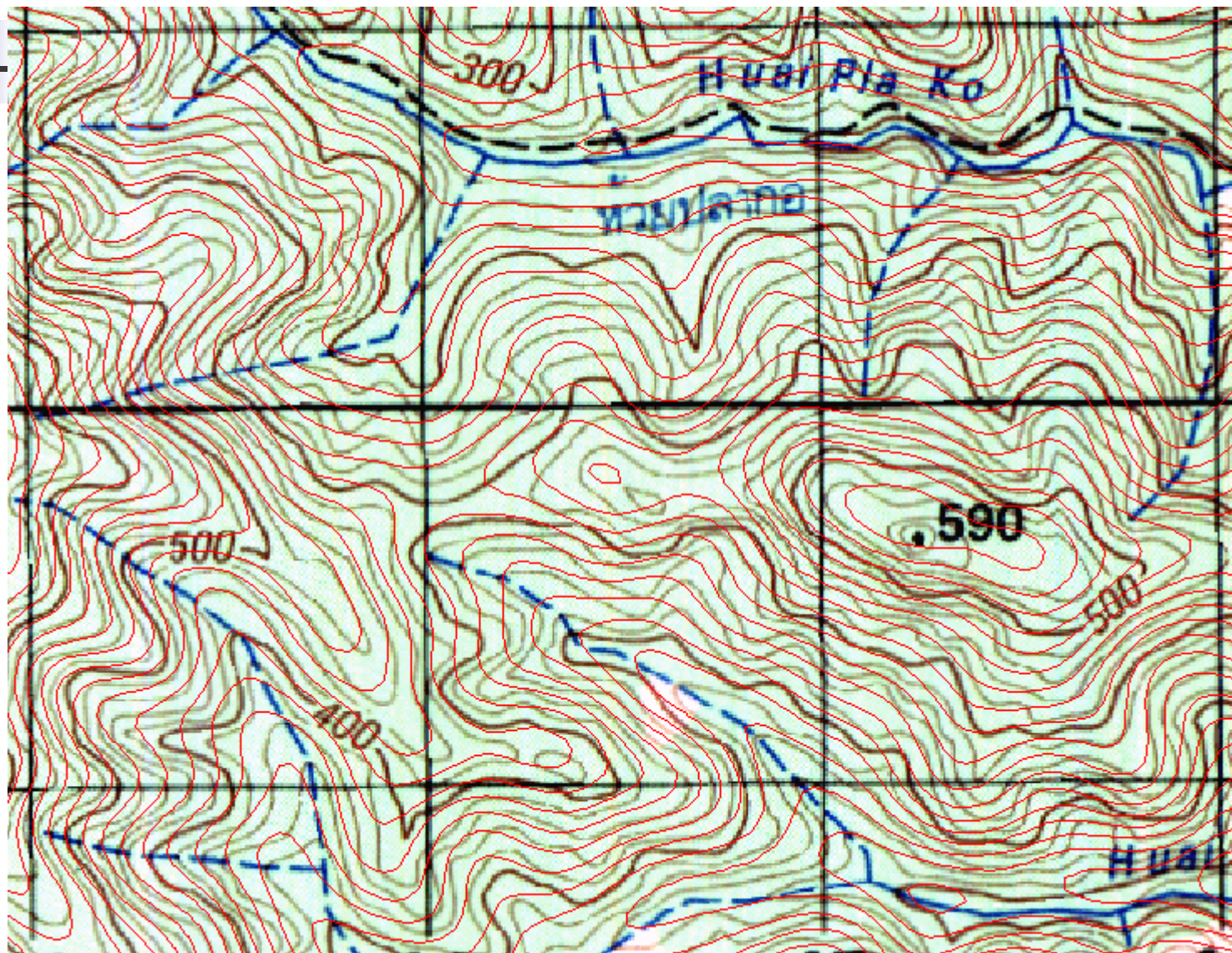


Miss Jirathana Worawattanameteeikul (M.Sc.)

DAAD Doctor Scholar



Comparison of SRTM-3 and L-7018 (1:50k map)





Activities on Radar Technology (Dr. Thongthit Chayakula)

- Chayakula T, Dowman, I, The Use of Airborne SAR/IfSAR Data for Topographic Mapping in An Urban Area, Proceeding to RSPS "Geomatics, Earth Observation and The Information Society", 12-14 September 2001, London UK.