

7 Southeast Asian Studies in a Nutshell

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And countless partners.



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What is 7SEAS?

The 7 Southeast Asian Studies program was initiated at a 2007 international meeting hosted by BPPT to study the extent aerosol particles impact regional weather, climate, and the environment.

The 7SEAS are : 1) Aerosol lifecycle and air quality; 2) Tropical meteorology; 3) Radiation and heat balance; 4) Clouds and precipitation; 5) Land processes and fire; 6) Physical and biological oceanography; and 7) Environmental characterization through satellite analyses, model predictions, and verification.

7SEAS has a grass roots style organization, with many small projects and international collaborations occurring along the common theme.

Historically research has segregated between the NE and SW monsoonal periods, corresponding to northern and southern biomass burning seasons.



Original 7SEAS phases

(Different speeds for different efforts)

- We seek international partnerships between meteorology and natural resource stakeholders.
- **Phase 1:** Promote interaction between 7-SEAS scientists. Exchange ideas and community data; Devise a plan for future collaborative research. Begin regular meetings.
- **Phase 2:** Develop a surface instrumentation network and data exchange system. Encourage scientist exchange. Begin development of regional research aircraft and R/V platforms.
- **Phase 3:** Perform intensive operations period (IOP) missions.
- No set timeline, progress when the stakeholder is ready.

From 2007

7SEAS Achievements.

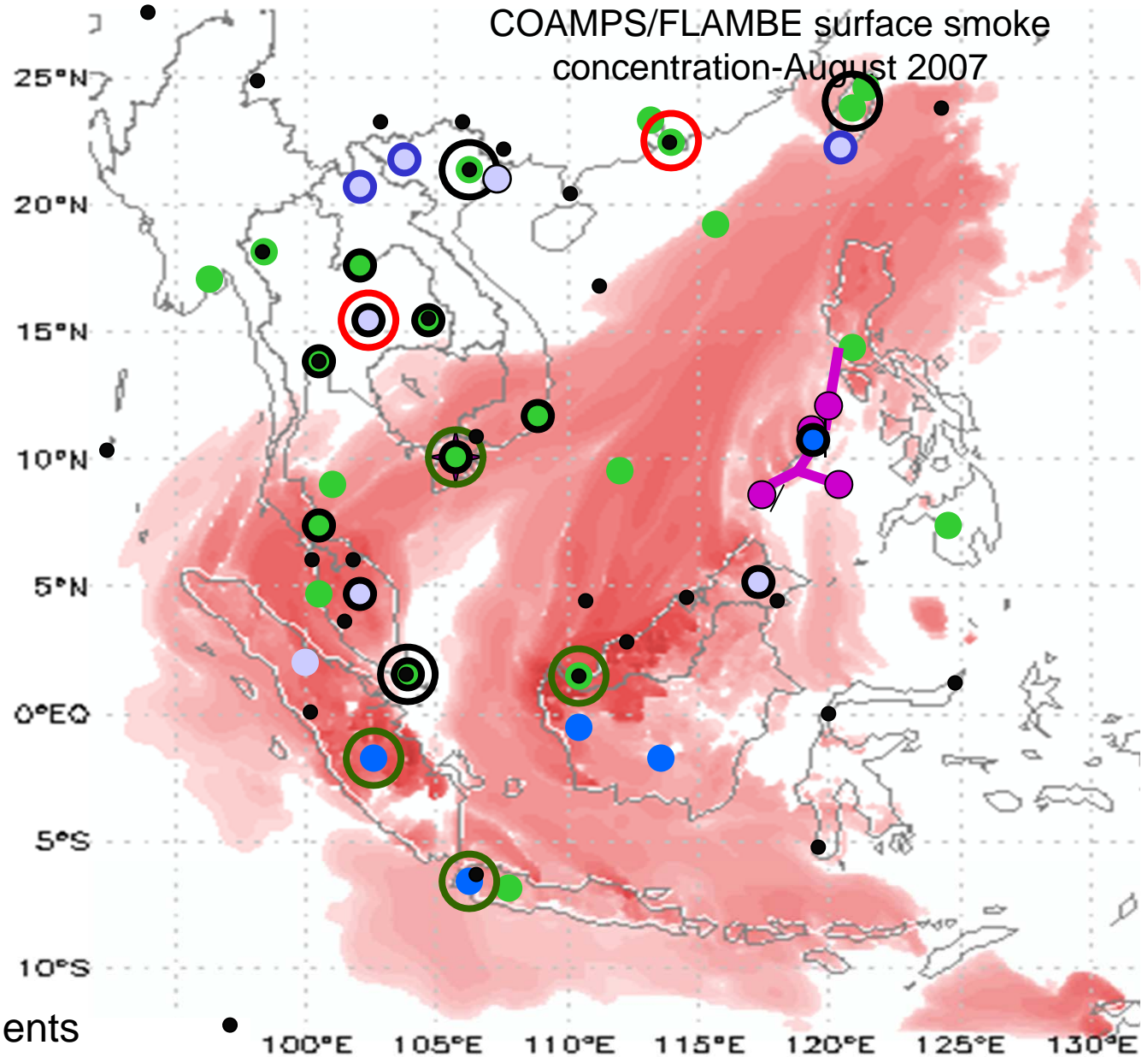
We have done a lot in a grass roots manner.

- Initiated a much needed focus and international dialog on regional air quality and climate.
- Dense network of sun photometer and lidar deployments resulted in the first ever regional characterization of aerosol lifecycle and impacts..
- Over a dozen individual field deployments, including 3 cruises.
- Regional aerosol characterization and emissions inventories that are key to future studies.
- In-depth evaluation of regional satellite and model products.
- Multiple regional mesoscale simulations.
- Provided the first “wiring diagram:” of meteorology-aerosol lifecycle relationships.
- 50+ peer reviewed scientific papers and 2 special issues.
- Future: Health and hazard studies should be considered.

Base Time: 00:00Z 11 AUG 2007

Peak Deployment 2012 SE Asia Ground Network

- AERONET
- AERONET Intensive.
- Radiation Enhanced
- Perm. Lidar
- MPLnet Intensive lidar
- Non-NASA Lidars
- Other aerosol measurements
- VASCO
- Raobs





Four significant SW monsoon measurement datasets and outcomes

- Successful AERONET and MPLnet network deployments in all participating countries. We went from almost no measurements to multi-year database created and used by a wide community. This is the basis for all regional work.
- NUS supersite, including sun photometer, MPL and HSRL lidars, particle & gas chemistry, microphysics because a base of operations for interdisciplinary research.
- 2011-12 research cruises coupled with a regional ground network allowed for detailed analysis of aerosol meteorology.
- Many small data collections between individual investigators not only generated much needed data, but developed linkages for future work.



Working with 7SEAS

- 7SEAS is grass roots and constantly morphing, rather than top down. Why? This style of architecture works well in SE Asia.
- Hence, you don't work with 7SEAS per say, but rather you can use 7SEAS to link with individual scientists. It is all personal.
- After several years of measurements we are in an analysis phase.
- The next "Meeting" is hosted By CRISP/NUS in August as to take advantage of the AOGS 2015 meeting.