

Problem Based Groundwater Investigations with Community Engagement for Undergraduate Term Projects at PSU, Thailand

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Abstract

In Southern Thailand, Prince of Songkla University is the leading public university across five campuses, with Hat Yai being the main one. Science education is strong with several undergraduate programs; among them physics with geophysics electives where students can also do their term project. Groundwater exploration is among the main objectives of the Geophysics Research Center at PSU and undergraduate projects are well integrated into them. During their classes and laboratories, students learn the science behind groundwater and geophysical technologies. This requires working in the field and thus carrying heavy equipment. Female students, often the majority, have to do that in the same way as male students and thus learning it by doing it as a team. Teamwork is one of the essential social skills students learn. Undergraduate term projects in geophysics are always chosen based on a real problem, which is usually coming from outside the department and in most cases from outside the university, with customers ranging from local communities, over companies, to local government agencies. By this, the students learn the importance of their work for other people, thus giving them a motivation. Every project requires the students to initially talk with the customers to identify the problem and explore the area. They then have to decide on the geophysical survey plan with support from their advisor. After finishing the data acquisition and processing, the interpretation will be done in a team with a presentation, usually at the university. After that, students give a shorter presentation and report to the customers, explaining them in a non-scientific language their interpretations and conclusion. They also have to answer questions that came up. For doing this, in most cases the team is going back into the field where the customers are. This overall procedure with community engagement shows the student how important groundwater is in many rural areas and how difficult it can be to find groundwater, thus realizing them the importance of preserving it. If circumstance allow, later field teams might visit earlier projects done and learn about how the customers continued after the undergraduate project was finished. Photo: Student team engaged with local community leaders after a finished project, where a well was drilled.

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