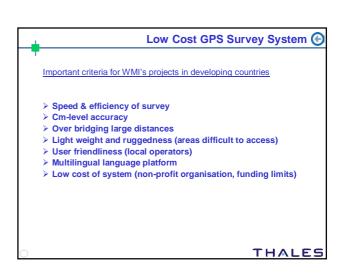
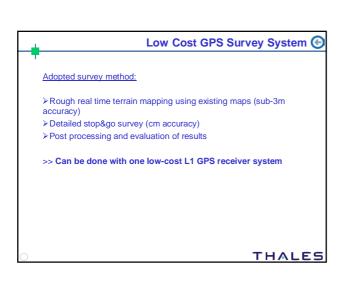
Low-Cost GPS Survey System Speeds Survey Work in Developing Countries George C.Green, Water Missions International, U.S. Robert Snow, Thales Navigation, U.S. Tomas Blaha, Thales Navigation, France

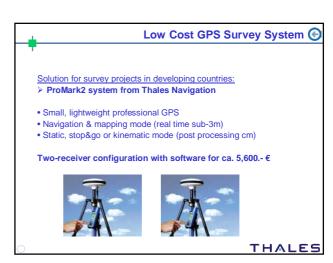
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Water Missions International (WMI) Environmental consulting firm (seat in South Carolina) Non profit organisation, relying on grants and foundations Origins in General Engineering Laboratories Environmental projects 1998: Honduras project – portable water treatment units Current projects in Ecuador, Haiti; Mexico, Uganda, Iraq... First job: evaluate the site; visiting and surveying existing situation

Low Cost GPS Survey System Site evaluation before acquisition of low cost GPS Two phases 1. Rough terrain investigation – viability of the project 2. Thorough survey >> Two separate trips to the region necessary After acquisition of GPS Survey incorporated in the initial visit >> No need of second trip into the region







Low Cost GPS Survey System

ProMark2 - key features:

- > Cm-level GPS static for control surveying
- > Cm-level kinematic for topographic surveying
- > WAAS/EGNOS aided navigation
- > Worldwide maps as background
- > Multilingual platform (En, Fr, Ge, NL, Fin, Sp, It, Port, Swe, Rus)
- > On-board data collector software (including feature codes)
- > Powerful, user friendly PC software
- ➤ Initialization using a 20 cm bar possible in 5 minutes or less

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Low Cost GPS Survey System (

ProMark2 – key benefits for the user:

- > Finding AND surveying points with one convenient package
- > Very light to carry in difficult terrain conditions
- ➤ Rapid survey (1s at one point after initialization is sufficient)
- ➤ Enabling traverse legs 100 up to times longer than conventional equipment. (200 m shot vs 20 km baseline with GPS)
- > Cm accurate topo point collection comparable to a total station at about 60% of the price



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Low Cost GPS Survey System (

WMI's projects with ProMark2

Site evaluations at six locations in Haiti to define places for:

- > Drilling wells
- ➤ Solar-powered pumps
- > Wastewater treatment systems
- $\succ \mbox{Water storage tanks (supplying water in case of power outages)}$





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Low Cost GPS Survey System (

WMI's experience with ProMark2: SUMMARY

- > Saving maintenance and transportation costs (ProMark2 lighter than total station with almost no service involved)
- > Saving costs of one operator compared to conventional equipment
- ➤ Saving one complete trip to the region
- > Saving costs for trained surveyors (little use instruction sufficient)
- Shortening the survey work from budgeted 7 to 5 days





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