Observational Approach for Urban Landslide Management

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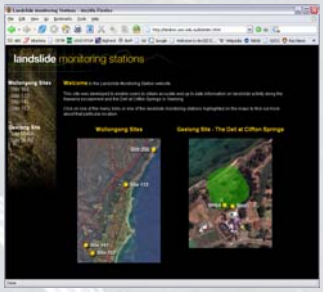
Industry Partners: Wollongong City Council, Roads and Traffic Authority of New South Wales, Rail Corporation of New South Wales

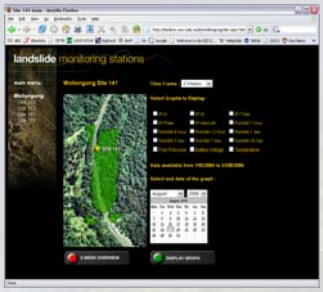
Highlights

- Compilation of region-wide Landslide Inventory is the fundamental starting point in the assessment of Landslide Susceptibility, Hazard and Risk
- Geographic Information System (GIS) - based data management and modelling
- Landslide Susceptibility and Hazard Modelling and preparation of maps can facilitate better management of landslide prone urban areas
- Observation and monitoring are essential for assessing landslide frequency, magnitudes of movement, triggering mechanisms and model validation
- Real-time monitoring is essential in the development of Early Warning capabilities and Risk Management during extreme events

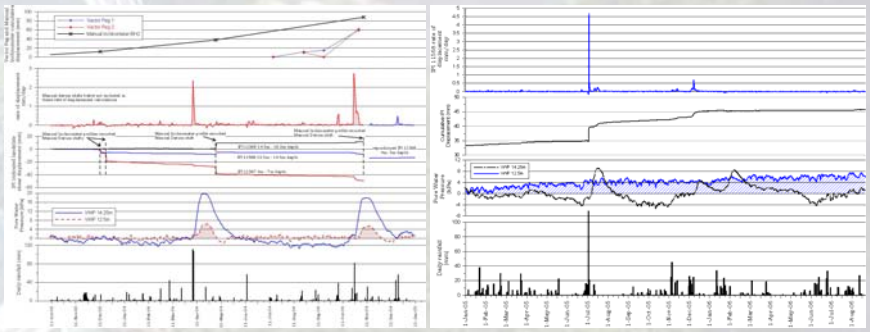


University of Wollongong web-based landslide monitoring facility

http://landres.uow.edu.au/ls/index.html
Access via PIN code ONLY
pflentje@uow.edu.au



Continuous Data from Site 355, October 2003 to current

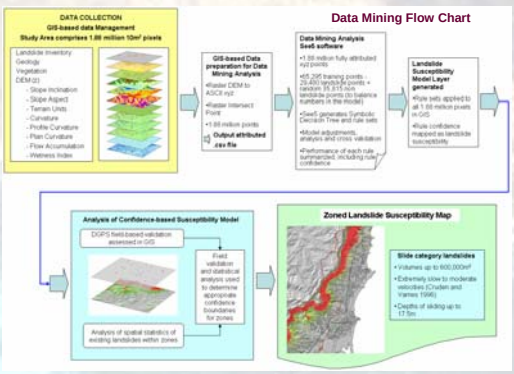


Assessing Landslide Performance

- Data compiled in Landslide Inventory – landslide classification, occurrences, volume, triggers etc
- Periodic and continuous monitoring of landslide performance data (such as sub-surface shear movement and pore water pressure) and rainfall at selected locations across a study area
- Assessing landslide frequency and magnitudes of movement versus triggering events, based on observations
- Automatic real-time transfer of data from field monitoring sites to a central control station
- Facility for automated real-time web-based display of landslide performance data

What else is required?

- Identify landslides to be monitored
- Installation of Real-Time Monitoring Station (with In Place Inclinometers, Vibrating Wire Piezometers, Extensometers, Pluviometers, Web cams etc)
- Knowledge (based on previous and on-going research) concerning landslide triggering rainfall thresholds and or landslide displacement thresholds
- Strategies for regional landslide management developed in association with Local Government and Utilities management



Landslide Susceptibility Modelling

- Based on Landslide Inventory and other GIS based data such as geology, vegetation, DEM and derivatives
- Use of Knowledge-based Data Mining modeling with multiple iterations and revisions)
- Results of modelling (distribution of data mining confidence levels) carefully analysed
- Comprehensive field validation carried out independently