Road asset management for extreme events: Mitigating the impact of landslides onto roads

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Frequent Landslides

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Storms and Landslides

A83 Rest and Be Thankful: Explosion for boulder goes ahead

A controlled explosion has been carried out in a bid to break up a huge boulder that was a threat to safety on the A83 at the Rest and Be Thankful in Argyll.

The 150-tonne rock was deemed unsafe by experts after being loosened on the hillside, 175m above the carriageway, during Storm Frank last week.

The blast to remove the boulder went ahead at about 16:30 despite low cloud on the slope delaying earlier efforts.

Two cars were caught up in a landslide on the A83 at the Rest and Be Thankful this morning.

Up to 300 tonnes of debris was washed down the hillside on the Tarbet to Campbeltown trunk road.
Impacts

(Winter and Bromhead, 2013; Winter, 2014)
Debris Flows
- Mixture of debris and water that truly ‘flows’
- High velocity propagation

Dependent upon:
- Material availability and type
- Steep slope angles
- Geology and Lithology
- Hydrology

Winter et al. (2013)
Mitigation
Lack of information about potential magnitude and geomorphological processes
Towards a Better Understanding

- Accurate estimations and detection of otherwise unseen movements
- Mapping for a robust catalogue
Modelling Runout

- RAMMS
  - 3D modelling package developed by WSL & SLF
  - Has recently found its way into consultancy applications
  - Can model entrainment, mitigation structures, impact pressures

Coarse example model
Thank you for listening.

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References

