



## Creating catastrophes in the classroom

Tommy Andersson

Sweden (tommy.andersson@edu.osthammar.se)

Buildings, infrastructure and human life are being destroyed by wind and landslides. To interest and motivate pupils and to help them understand abstract knowledge, a practical experiment could be useful. These experiments will show why strong winds circulate around tropical cyclones and how fluvial geological processes affect nature and communities. The experiments are easy to set up and the equipment is not expensive.

### Experiment 1:

Exogenic processes of water are often slow processes. This experiment will simulate water processes that can take thousands of years, in less than 40 minutes. This experiment can be presented for and understood by pupils at all levels. Letting the pupils build up the scenery will make them more curious about the course of events. During that time they will see the geomorphological genesis of landforms such as landslides, sandurs, deltas, canyons sedimentations, selective erosions. Placing small houses, bridges etc. we can lead to discussions about natural catastrophes and community planning. Material needed for the experiment is a water bucket, erosion gutter, clay (simulating rock), sand and smaller pebbles (simulating the soil), houses of "Monopoly" size and tubes.

By using a table with wheels it is easy to reuse the result for other lessons. Installation of a pump can make the experiment into a closed loop system. This installation can be used for presentations outside the classroom.

### Experiment 2:

The Coriolis Effect explains why the wind (moving objects) deflects when moving. In the northern hemisphere the deflection is clockwise and anti-clockwise in the southern hemisphere. This abstract effect is often hard for upper secondary pupils to understand. This experiment will show the effect and thus make the theory real and visible. Material needed for this experiment is a bucket, pipes, a string. At my school we had cooperation with pupils from the Industrial Technology programme who made a copper pipe construction.

During the experiment the pupils have the opportunity to learn from physical experience. My experience is that the pupils become more engaged in the subject and later they can refer to these experiments gaining a deeper understanding of geophysical processes.