



A new experimental site for the study of snow avalanches in the Aosta Valley (NW-Italy)

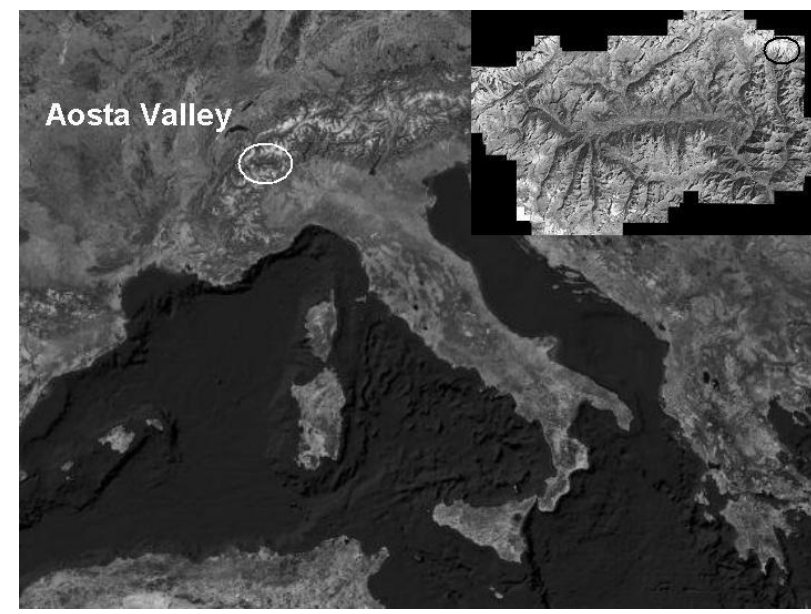


Segor V. ⁽¹⁾, Barbero M. ⁽²⁾, Barpi F. ⁽²⁾, Borri Brunetto M. ⁽²⁾, Bovet E. ⁽²⁾, Brulport A. ⁽³⁾, Ceaglio E. ⁽³⁾, Chiaia B. ⁽²⁾, Fassin D. ⁽⁴⁾, Freppaz M. ⁽³⁾, Frigo B. ⁽²⁾, Godone D. ⁽⁵⁾, Maggioni M. ⁽³⁾, Pallara O. ⁽²⁾, Torretta F. ⁽⁴⁾, Viglietti D. ⁽³⁾ and Welf A. ⁽⁴⁾

Objectif coopération territoriale européenne - Programme Italie-France (Alpes) 2007/2013 - Alcotra "Dynamique des avalanches: départ et interactions écoulement/obstacle" (DynAval) – 048

- (1) Ufficio Neve e Valanghe, Regione Autonoma Valle d'Aosta (IT)
- (2) DISTR, Politecnico di Torino (IT)
- (3) Di.Va.P.R.A. - LNSA, Chimica Agraria e Pedologia, Università di Torino (IT)
- (4) Monterosa s.p.a., Gressoney La Trinité – AO (IT)

LOCATION: Aosta Valley (North-western Italian Alps) within the MonterosaSki resort on the Monte Rosa Massif. The slope, with an altitude difference of about 300 m (from 2570 to 2300 m a.s.l.), has a NW aspect and a mean slope angle of about 38°. The rock mass is constituted of a surface debris layer about 10 m thick on a highly fractured bedrock.



MAIN OBJECTIVES:

- the dynamics of small-medium size avalanches;
- the interaction between avalanche flows and obstacles;
- the mass balance of avalanches;
- the characteristics of the snow in the deposition zone compared to those of the release zone;
- the release process induced by shock waves.

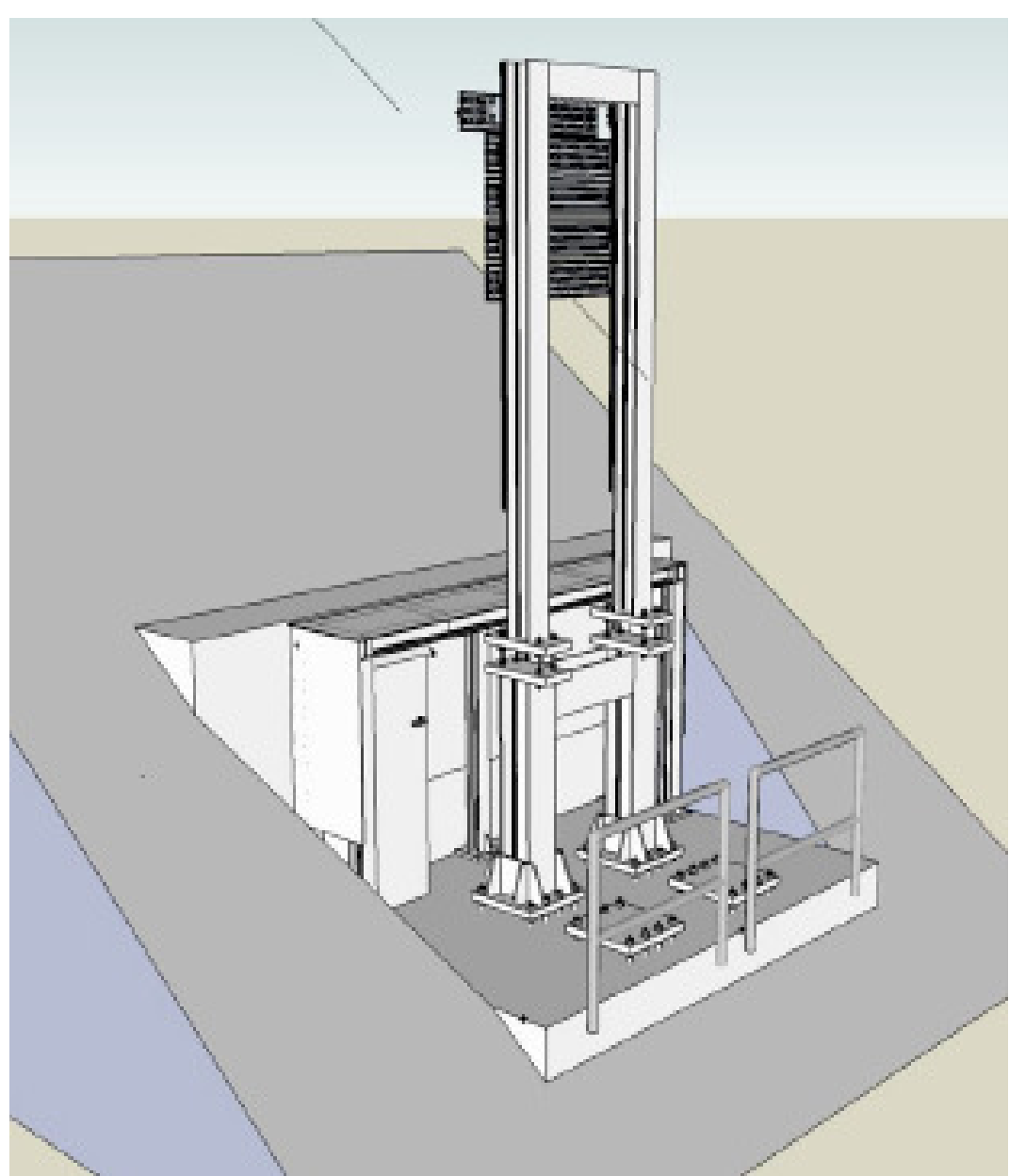
EXPERIMENTAL SITE



WINTER 2009-2010

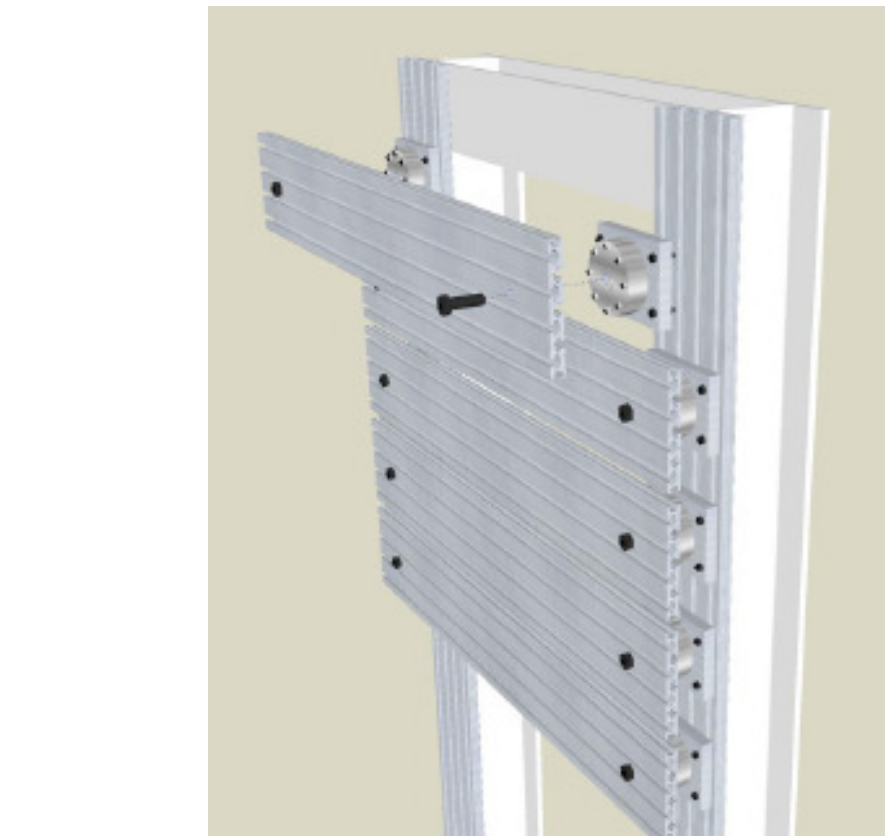
| DATE | TRIGGERING METHODS | N. SHOTS |
|----------|--------------------|----------|
| 04/12/09 | Carica Vassale | 1 + |
| 26/12/09 | Natural | |
| 06/02/10 | Daisy-Bell | 3 - |
| 20/02/10 | Carica Vassale | 2 + |
| 27/03/10 | Daisy-Bell | 2 + |
| 31/03/10 | Carica Vassale | 2 + |
| 04/04/10 | Natural | |
| 05/04/10 | Carica Vassale | 2 - |

GALVANISED STEEL OBSTACLE



Two masts (H = 4 m)

INSTRUMENTATION OF THE OBSTACLE



LOADING CELLS
ACCELEROMETERS
PRESSURE TRANSDUCERS
TERMOCOUPLES

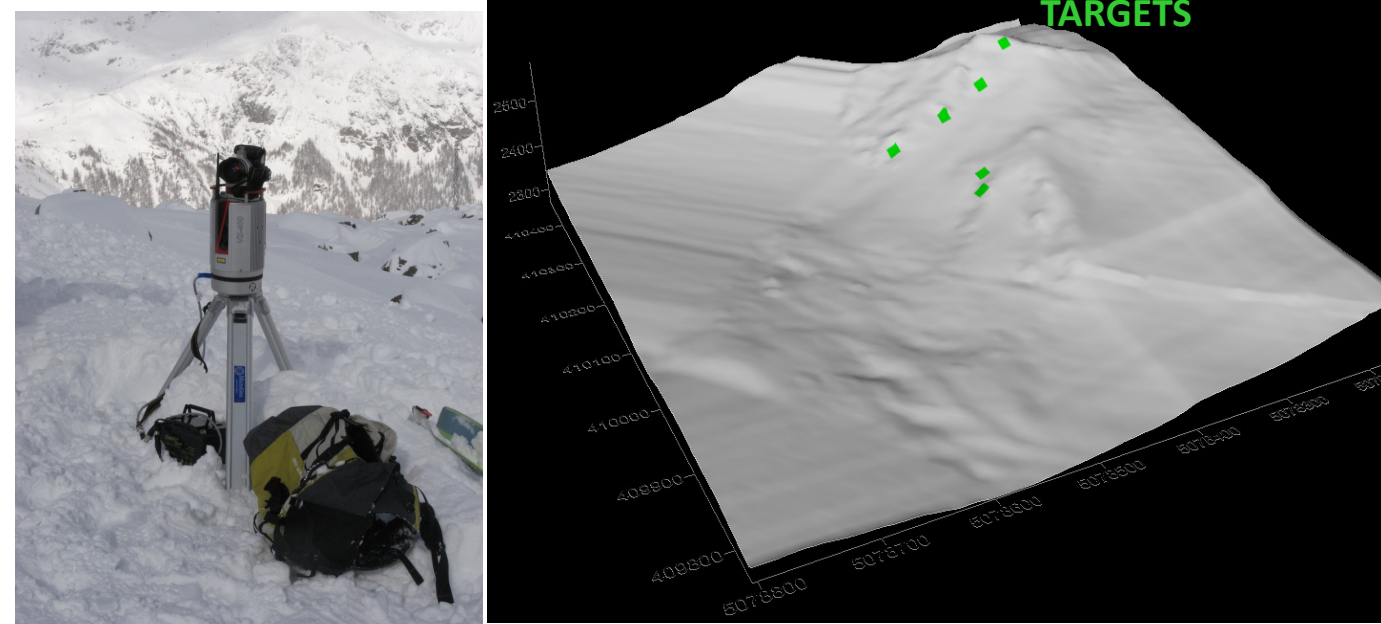
Horizontal plates for measuring the impact forces. The plates can be separately positioned at different levels or grouped together to form a panel with an area of 1 m².

ARTIFICIAL TRIGGERING



EXPLOSIVES (CARICA VASSALE) DAISY BELL

LASER SCANNER MEASUREMENTS

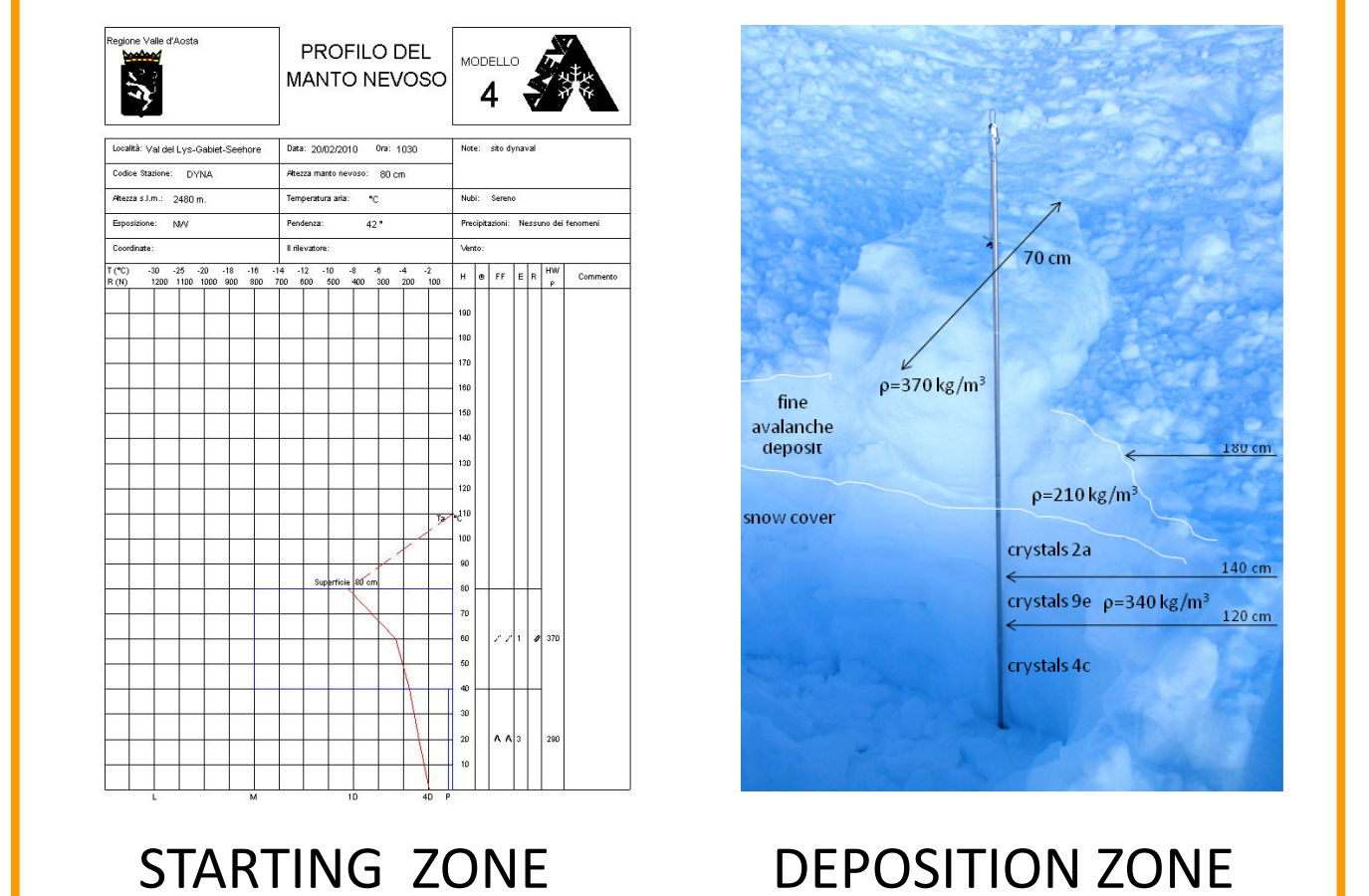


STABILITY TESTS



Column test results:
very easy
Extended column test results:
ECTP14

SNOW COVER STRATIGRAPHY



GPS SURVEY

