

## **Landslide monitoring in south of France with tandem data**

Fruneau  
Bénédicte

LPMG, Université de  
Marne-la-Vallée  
2 rue de la Butte Verte  
93166 Noisy-le-Grand  
Cedex, France

fruneau@ipgp.jussieu.fr  
<http://www.ipgp.jussieu.fr>  
Institut de Physique du  
Globe

Delacourt  
Christophe

Département Etudes  
Spatiales  
4 place Jussieu 75252  
Paris Cedex 05, France  
delac@ipgp.jussieu.fr

Achache  
José

<http://www.ipgp.jussieu.fr>  
BRGM, Direction de la  
Recherche  
3 av. C. Guillemin, BP  
6009  
45060 Orléans Cedex 2,  
France

Carnec  
Claudie

j.achache@dr.brgm.fr  
BRGM, Direction de la  
Recherche  
3 av. C. Guillemin, BP  
6009  
45060 Orléans Cedex 2,  
France

c.carnec@dr.brgm.fr

### **Abstract**

**Our aim is to study movements of small spatial extent with SAR differential interferometry. We focus on two landslides in mountainous context. The two sites of interest are located in southern France. The choice of the first one, the Saint-Etienne-de-Tinée landslide, is based on the acquired experience of differential interferometry on this site, which allowed us to obtain a global map of the displacements, to compare them with those measured on ground, as well as to model the deformation field. This study was carried out with images acquired during the Commissioning Phase of ERS-1.**

**The second site, the landslide of Séchilienne, near Grenoble, threatens an highly frequented road in the Alps.**

**For both sites, the tandem mission avoids the incompatibility between the dynamic of the movements and the actual standard orbit cycles of 35 days : they offer the opportunity to pursue studies of sites for which displacements are too high to be observed on a so large time-scale.**

**We built six differential interferograms on the Saint-Etienne-de-Tinée landslide, with images acquired during 1995 and 1996. On these interferograms, we observe a discontinuity of phase with respect to the stable zone. Some of them clearly evidence a small block at the upper east part of the landslide, that we already detected in the previous interferograms. It confirms the high values of displacements of this block, and then its instability. We compare the displacements with ground measurements obtained with a network of 50 laser targets deployed on the site. The study of the Séchilienne**