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France). The OPGC presents a unique and



Magmas et Volcans





the volcanic plume with quite a good spatial resolution (pixel = 1×1km) and gave the opportunity to provide near-real-time quantitative parameters

and 12µm channels permits the qualitative discrimination of ash among various species (water droplets, ice crystals, etc.) in the volcanic cloud. Then, forward modelling of ash scattering in the atmosphere (Wen and Rose, 1994) permits the inversion of Terra-MODIS infrared data, and gives minimum first order estimates of ash concentration and radius particularly (Figure 2.1). Results obtained on April 19 show an ash concentration in the range 2-5mg/m³ that gives a total ash mass integrated on the considered area of 170 kt. Mean ash radius was estimated at about 3µm.



Monitoring the Eyjafjöll volcanic plume using OPGC platforms : remote sensing and in-situ measurements Laboratoire de météorologie physique

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In Situ Measurements at the Puy de Dôme (1465m)





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Backward trajectory ending at 0700 UTC 19 Apr 10 GDAS Meteorological Data 04/18 04/17 0 Job Start: Mon Apr 26 11:18:48 UTC 2010

Trajectory Direction: Backward Duration: 84 hrs Vertical Motion Calculation Method: Model Vertical Velocity Meteorology: 0000Z 15 Apr 2010 - GDAS1 Figure 3.2 : Hysplit back trajectory the 19/04/2010 above Clermont Ferrand

Back-trajectory simulations using the Hysplit model (NOAA) indicate that the volcanic clouds observed at Clermont-Fd on April 19 in the early morning were likely emitted by Eyjafjoll volcano in the night of April 15-16 at an altitude of 6500-7000m a.s.l.



Figure 4.2a 3000 Diameter (µm) 2000 PCASP CL Figure 4. 2b FSSP CL PCASP TL FSSP TL 1000 1000