



From Iceland to satellites



Collège André Lahaye

Scientific workshop students Alice,
Doriane, Manon & Rebecca

Toulouse 09.06.2010

Introduction

We will talk about the topic of our researches : aerosols, satellites and the photometer study.

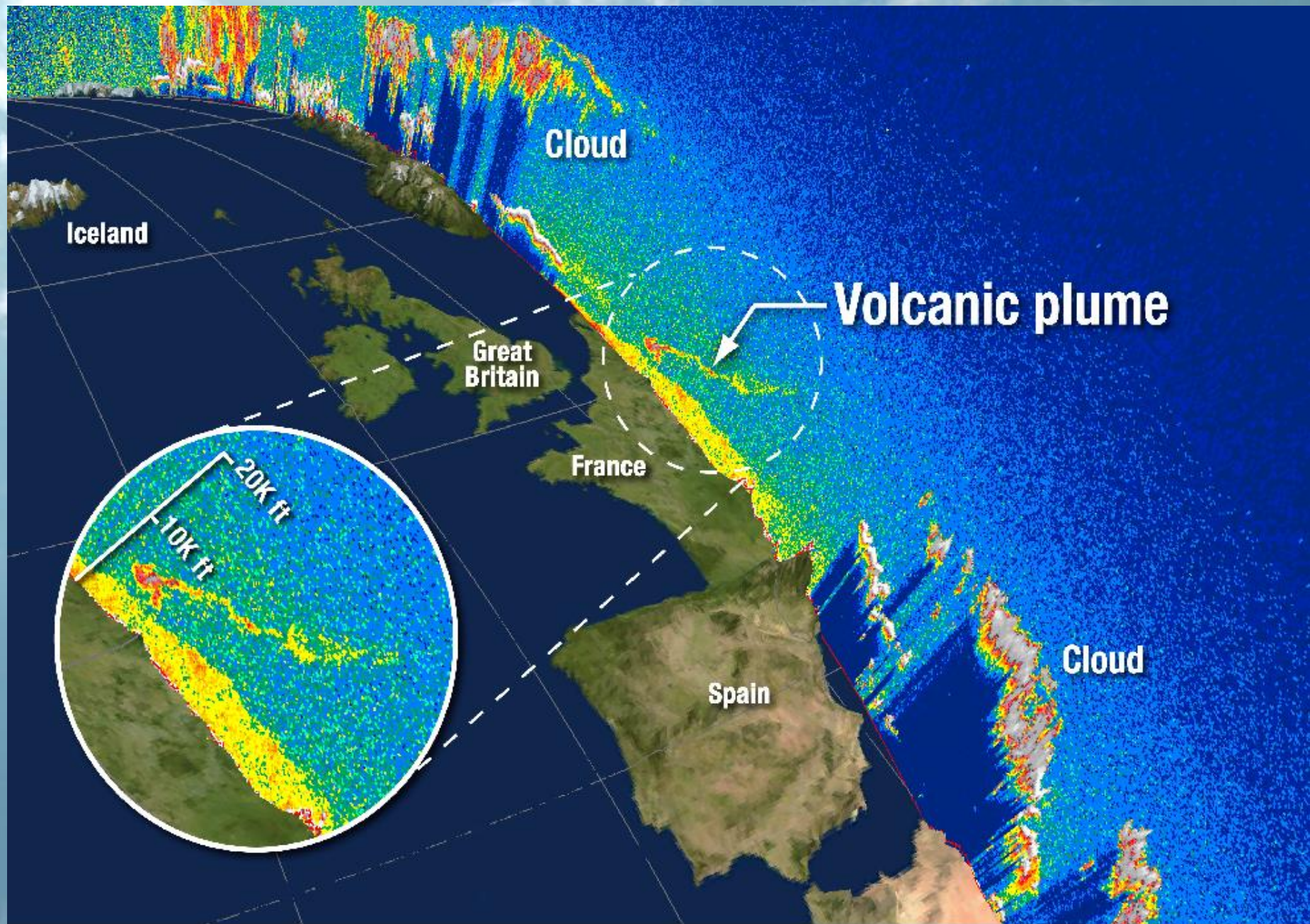
We have taken for example the Iceland volcano Eyjafjoell, we have used a satellite like Calipso, data from different schools on Globe France and Globe International sites to show the aerosols rejected by this volcano in our region.

Through this example we will speak about these sites we have used to enter our data, and how to use satellite data and pictures in our middle school.

THE VOLCANO EYJAFJÖLL AND ITS CONSEQUENCES IN EUROPE



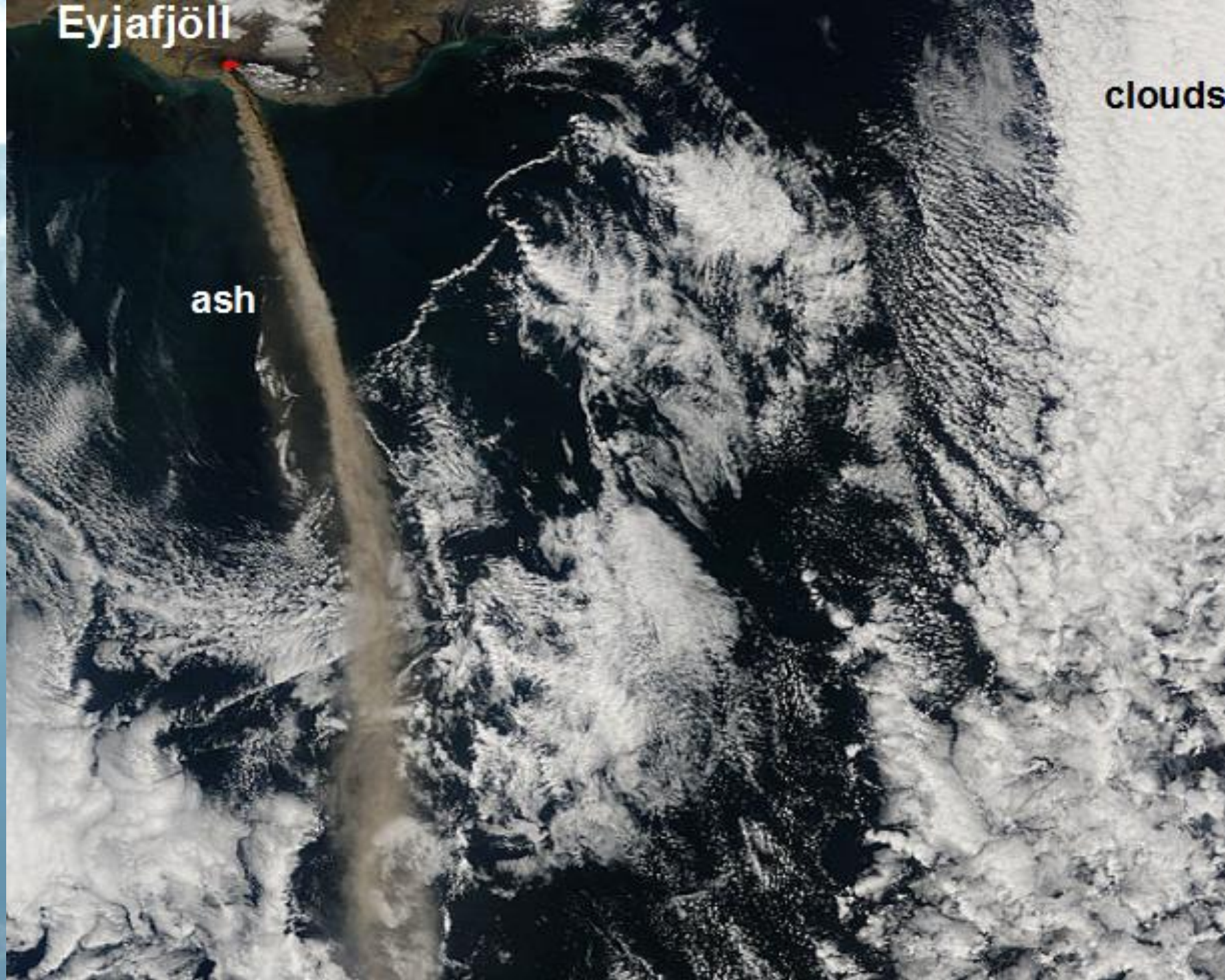


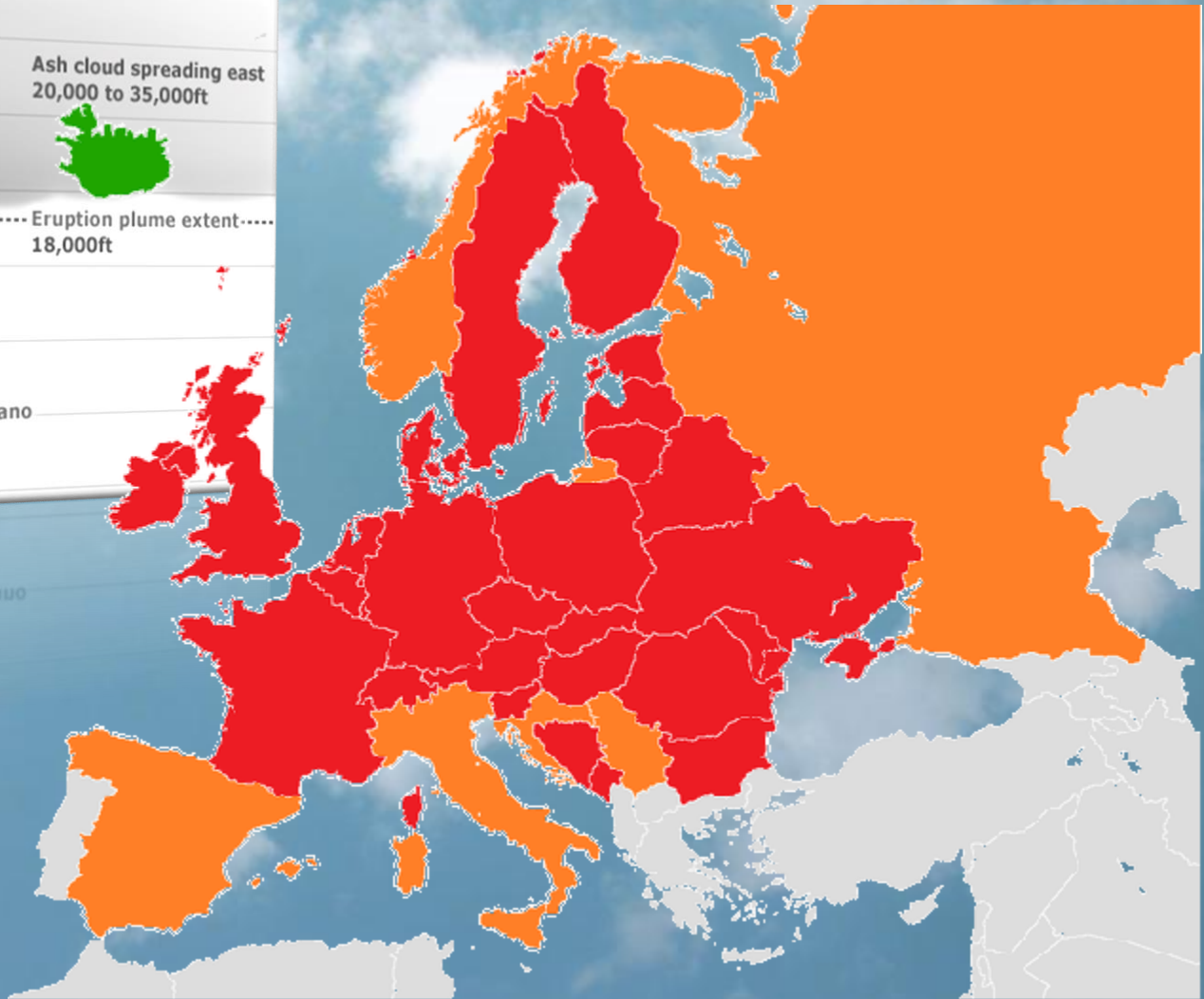
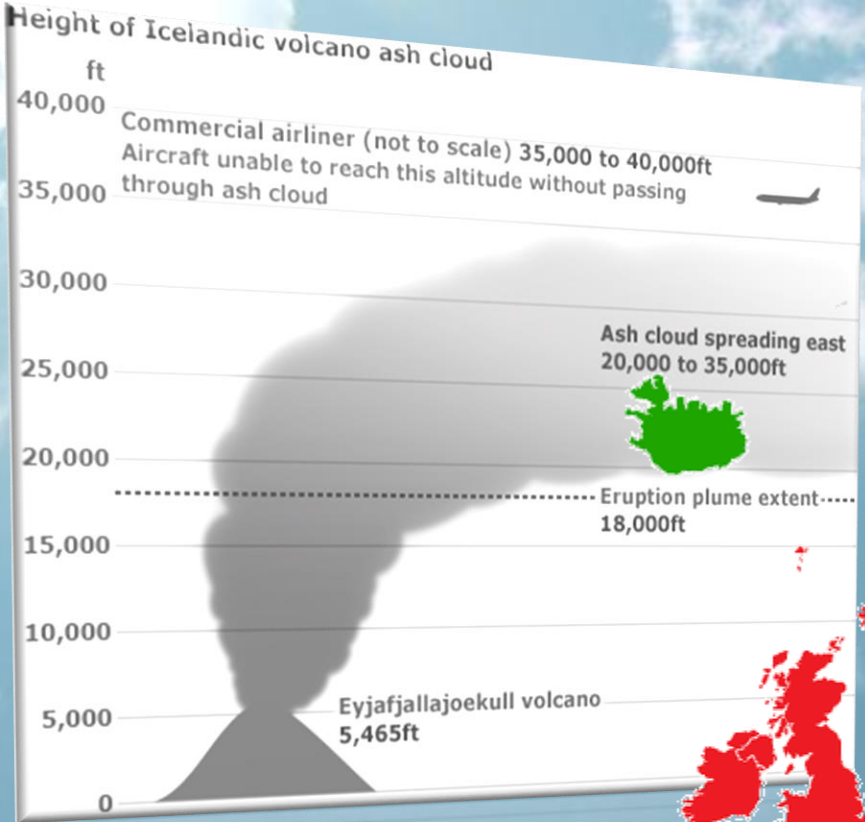


Eyjafjöll

clouds

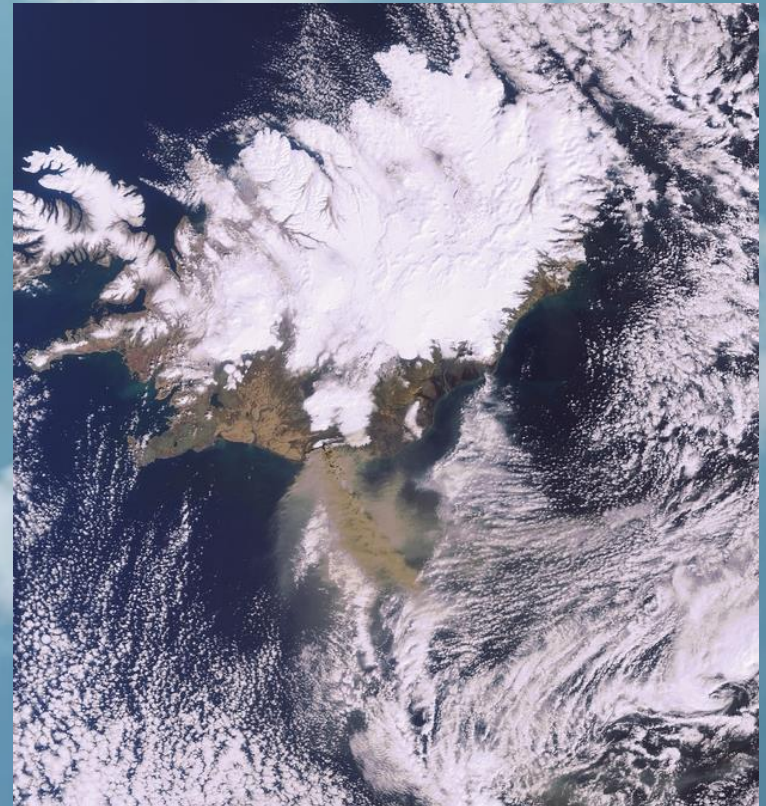
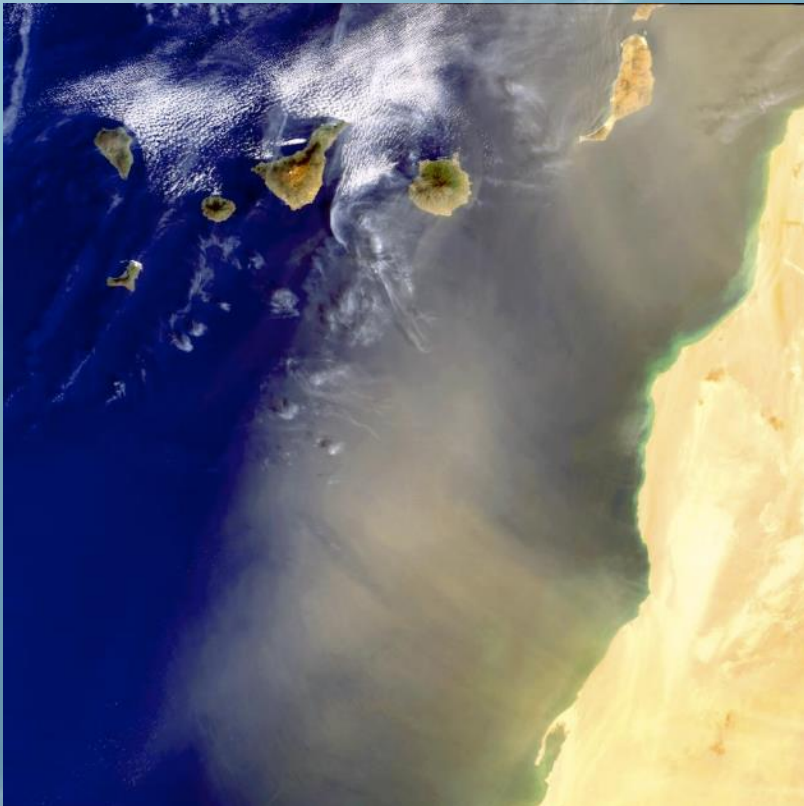
ash



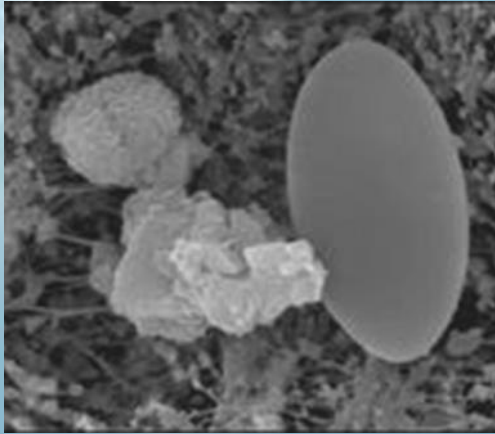


Volcanoes, dust and aerosols

The volcanoes send in atmosphere a lot of dust. Those dust and plume ash are primary aerosols, like fire smokes particles, sand dust,...



Some aerosols are secondary, coming from chemical reactions, like human industries smokes

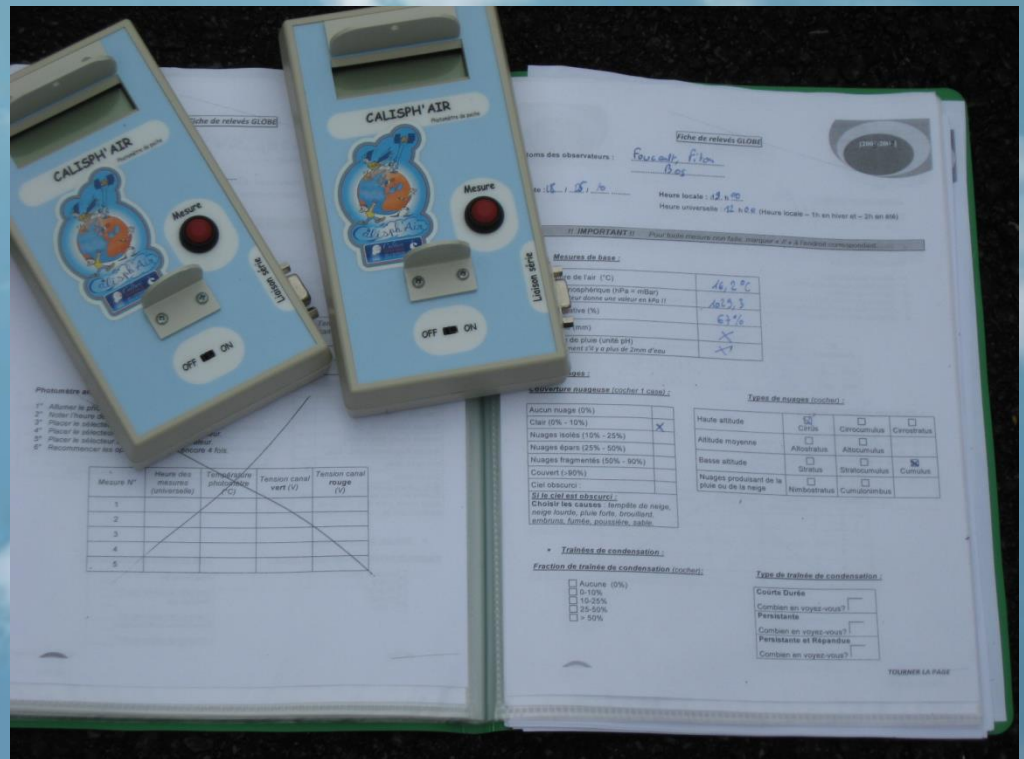


An example of aerosols



The ground measures

Several french schools realize measures, weather ones and aerosols related ones (like the AOT/Atmospheric Optical Thickness, using photometers).



The measures are reported into the globe french website. During the March-May Campaign, it was possible to find other schools data and compare with other schools or with other data sources.

The screenshot shows the top navigation bar of the GLOBE France website. It features a dark background with a white GLOBE France logo on the left. To the right of the logo are several menu items, each with a small icon: 'Tous les projets', 'Argonautica', 'Calisph'Air', 'Météo des Écoles', 'ArgoNimaux', and 'Saisies'. Below the navigation bar is a search bar with the text 'Le portail GLOBE France' and a 'CHERCHER:' button. Underneath the search bar, there is a 'Sur le portail' section with a list of links: 'À propos ...', 'Bienvenue', 'La communauté', and 'Mode d'emploi'. To the right of this list is a 'Bienvenue' section with the text 'Rejoignez la communauté éducative GLOBE France ...' and a row of six small images showing various school activities and students.

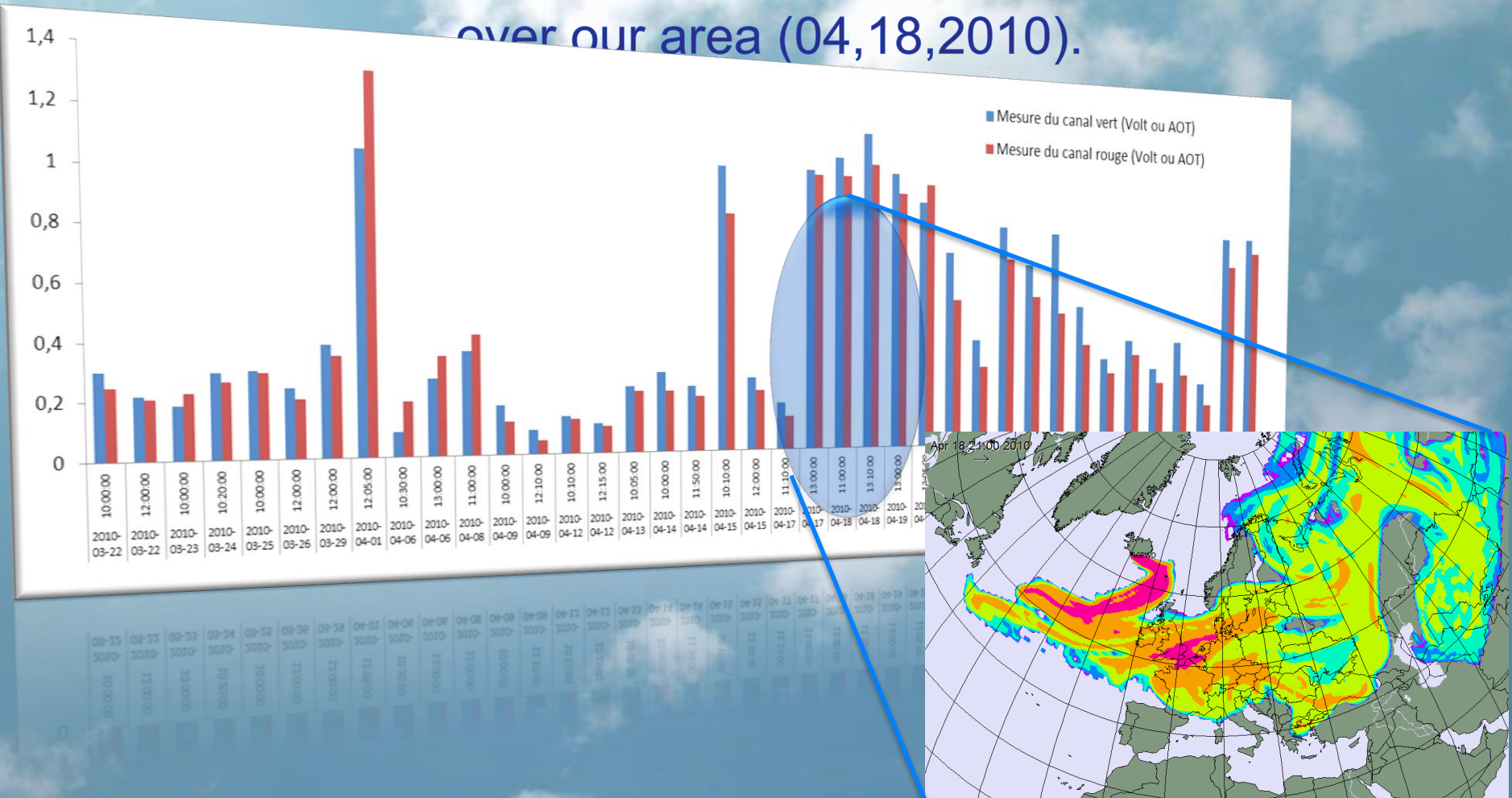
The screenshot shows the login page for the 'Campagne de mesures GAO 2010 Calisph'Air - GLOBE FRANCE'. The page has a light blue background and features the GLOBE France logo at the top center. On the left side, there are logos for 'Météo des Écoles', 'cnes', and the French flag. The main content area includes a 'MEMBRES' section with a dropdown menu for 'Sélectionner son établissement' (currently showing 'Fr - 005 - MOUANS-SARTOUX - Collège La Chénéale'). Below this is a password field with the text 'Tape ton mot de passe' and 'Mot de passe oublié', and a 'Valider' button. To the right of the login form is a 'SYNSCRIRE EN LIGNE' section with a blue arrow pointing right and the text 'Si vous souhaitez apparaître dans la liste'. At the bottom of the page, there is a footer with the text 'et améliorations | 22/07 - Mise en ligne d'un forum (Alexandre Nicolas) | 17/05 - Page des cartes disponible en' and the GLOBE France logo.

The screenshot shows a map of France with several blue dots indicating school locations. The text '04-2010' is visible on the left side of the map. To the right of the map is a list of school names and their locations:

- CESTAS - Collège Cantolande
- AGEN - Lycée Bernard Palissy
- PODENSAC - Collège Georges Brassens
- ARETTE - Collège de Barétous
- BIARRITZ - Collège Jean Rostand
- CESTAS - Collège Cantolande
- COLOMIERS - Collège Léon Blum
- CAMBO LES BAINS - Collège Errobi
 - HYERES - Cours Maintenon
 - BEDOUS - Collège d'Aspe
- TARBES - École Théophile Gautier
- LANGON - Collège Jules Ferry

The measures campaign and the icelandic volcano cloud.

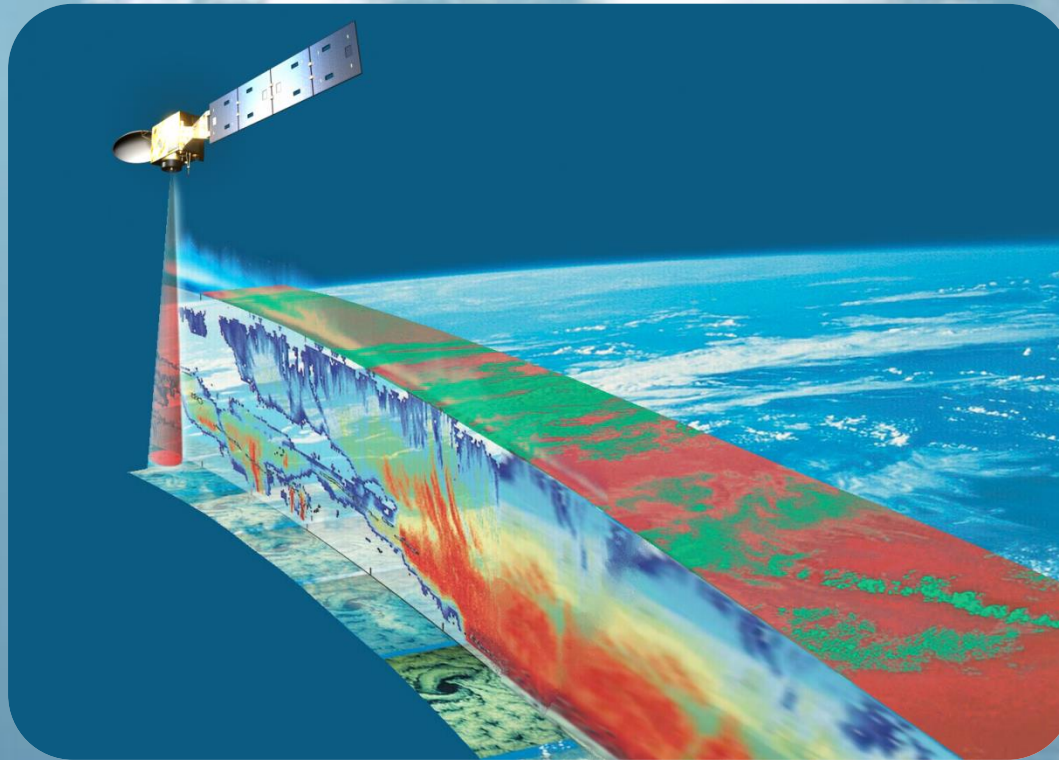
The data could show when the volcano ash cloud is over our area (04,18,2010).





The Calispo data

Cloud Aerosol Lidar Infrared Pathfinder Satellite
Observation



Products

+ OVERVIEW

+ UPDATES

- LIDAR BROWSE IMAGES

+ EXPEDITED BROWSE IMAGES

+ WIDE FIELD CAMERA IMAGES

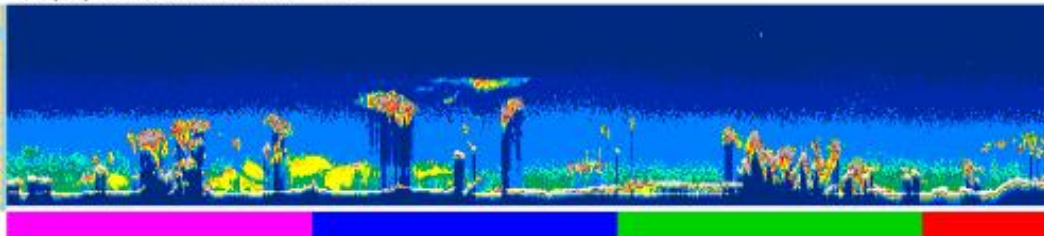
2010

January 2010	February 2010	March 2010	April 2010
S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
May 2010	June 2010	July 2010	August 2010
S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
September 2010	October 2010	November 2010	December 2010
S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

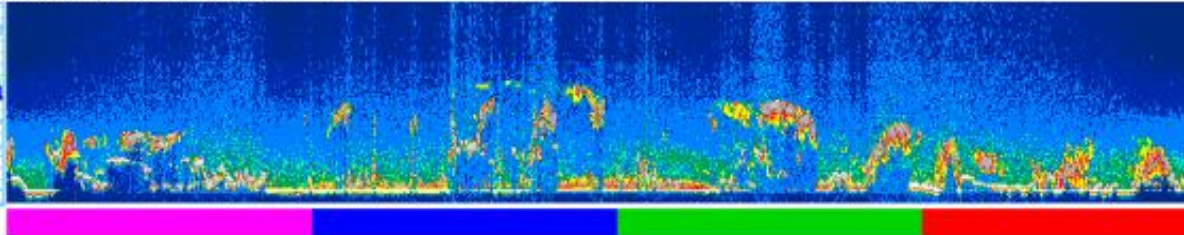
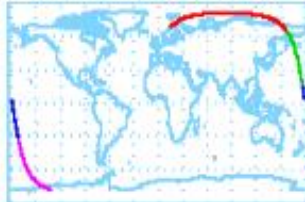
2009

January 2009	February 2009	March 2009	April 2009
S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

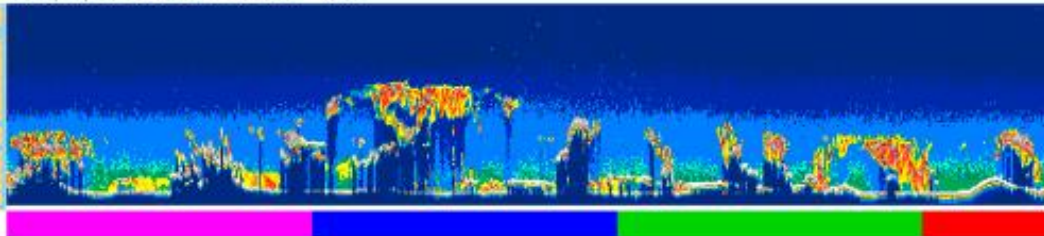
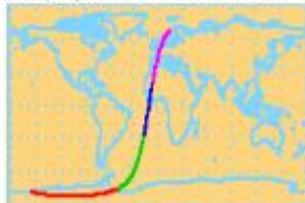
Begin 2010/04/15 00:34:42.2400 UTC
End 2010/04/15 01:21:09.0454 UTC
Number Profiles 56190



Begin 2010/04/15 01:21:09.0950 UTC
End 2010/04/15 02:13:35.9704 UTC
Number Profiles 63450

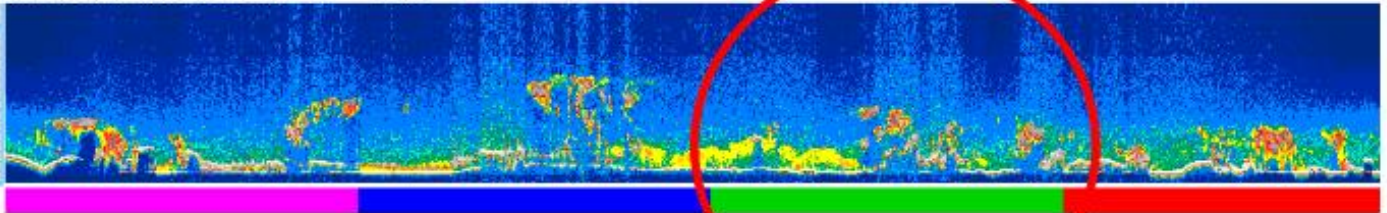
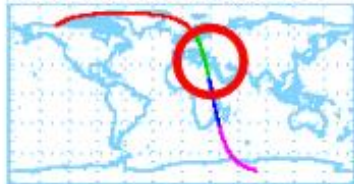


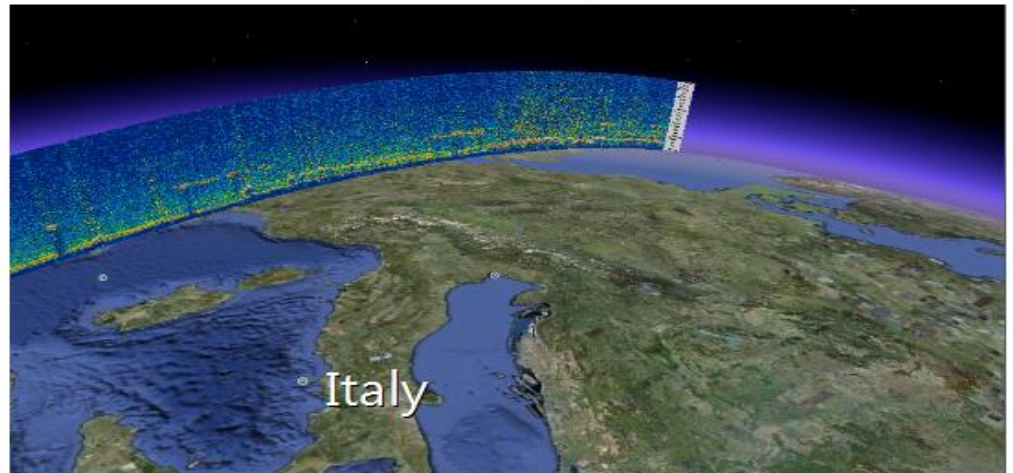
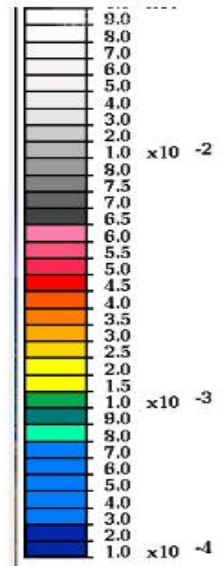
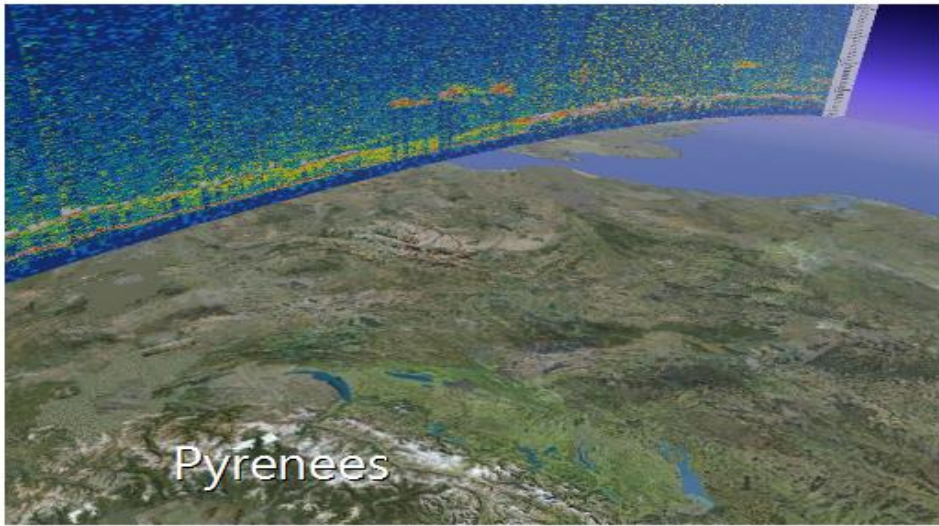
Begin 2010/04/15 02:13:36.0200 UTC
End 2010/04/15 03:00:03.5684 UTC
Number Profiles 56205



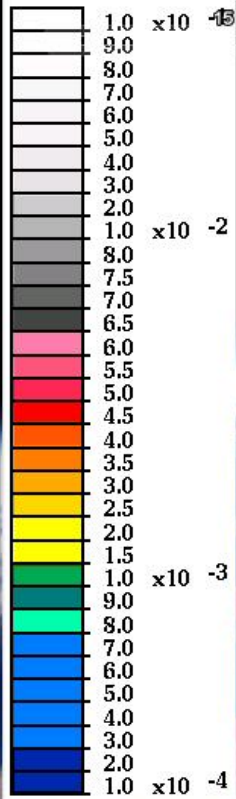
Begin End Number Profiles 

Begin 2010/04/15 11:14:30.2650 UTC End 2010/04/15 12:06:56.3973 UTC Number Profiles 63435

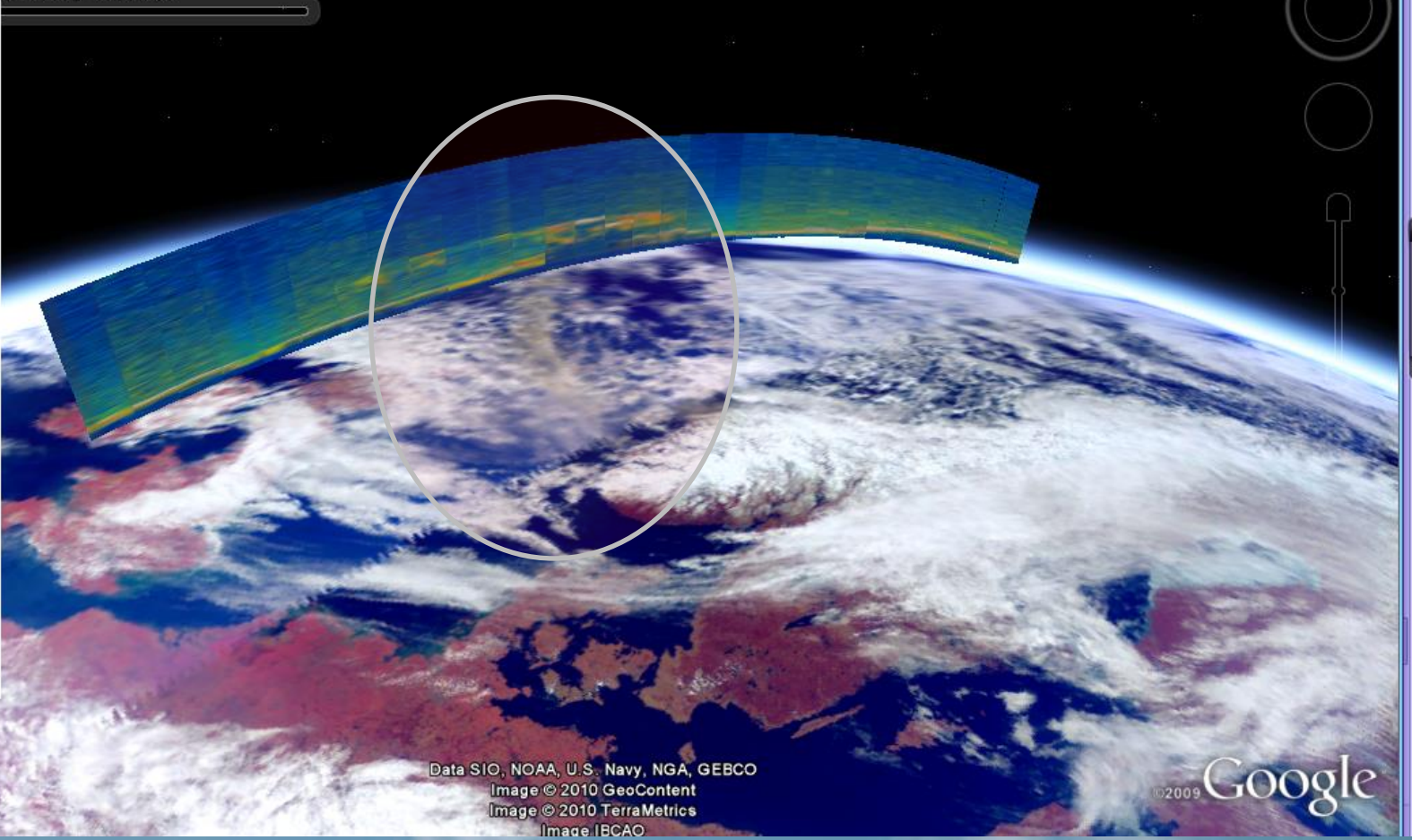




532 nm Total Attenuated Backscatter, /km /sr



avr. 2010, 3:38:40 pm



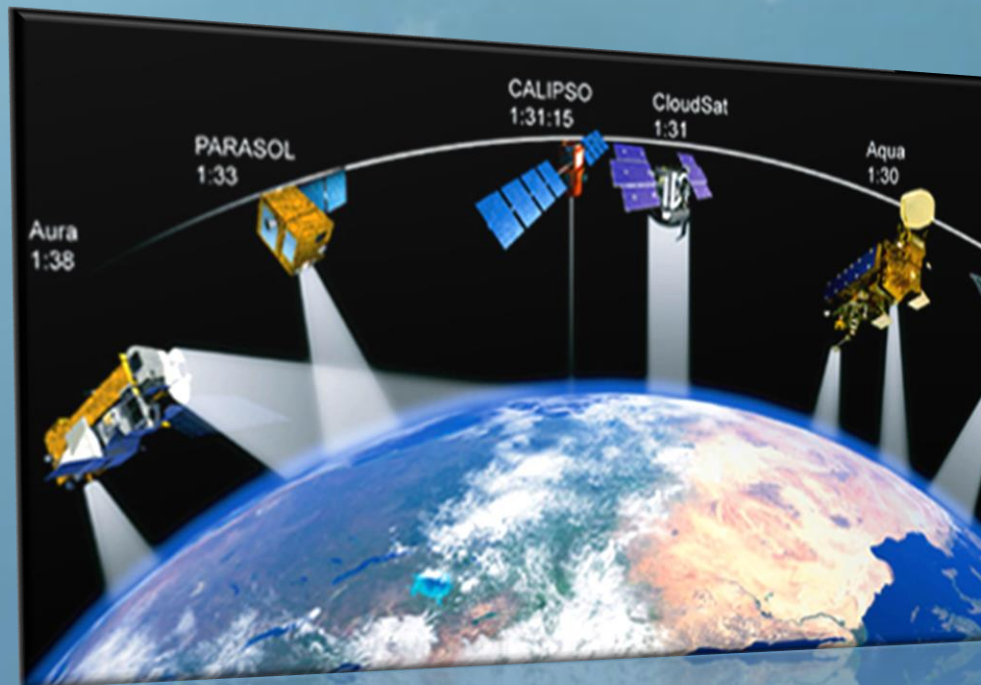
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image © 2010 GeoContent
Image © 2010 TerraMetrics
Image IBCAO

©2009 Google

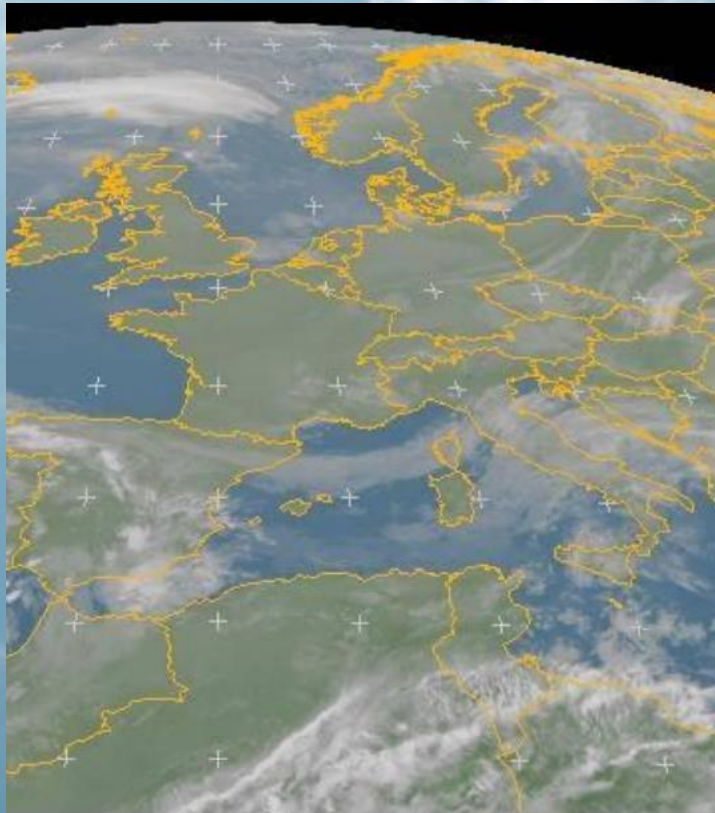
Complementary data


Calipso is part of the « A-train », flying with other satellites (AQUA, CLOUDSAT, PARASOL & AURA).

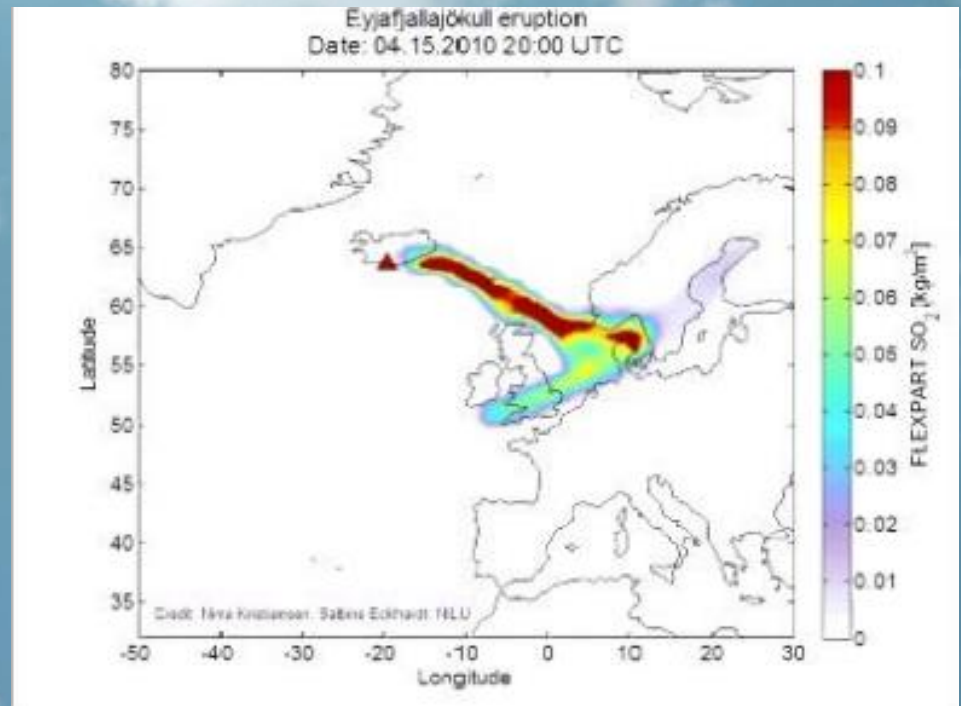
CALIPSO and CLOUDSAT are complementary and provide some new 3D perspectives of how clouds and aerosols affect weather and climate.



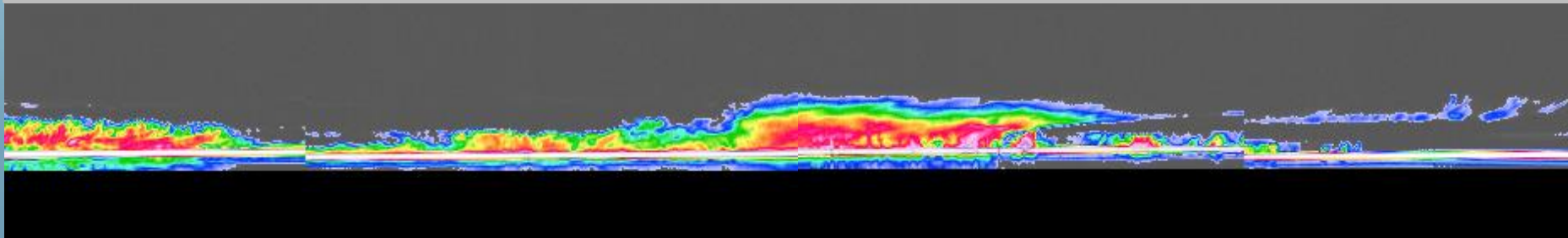
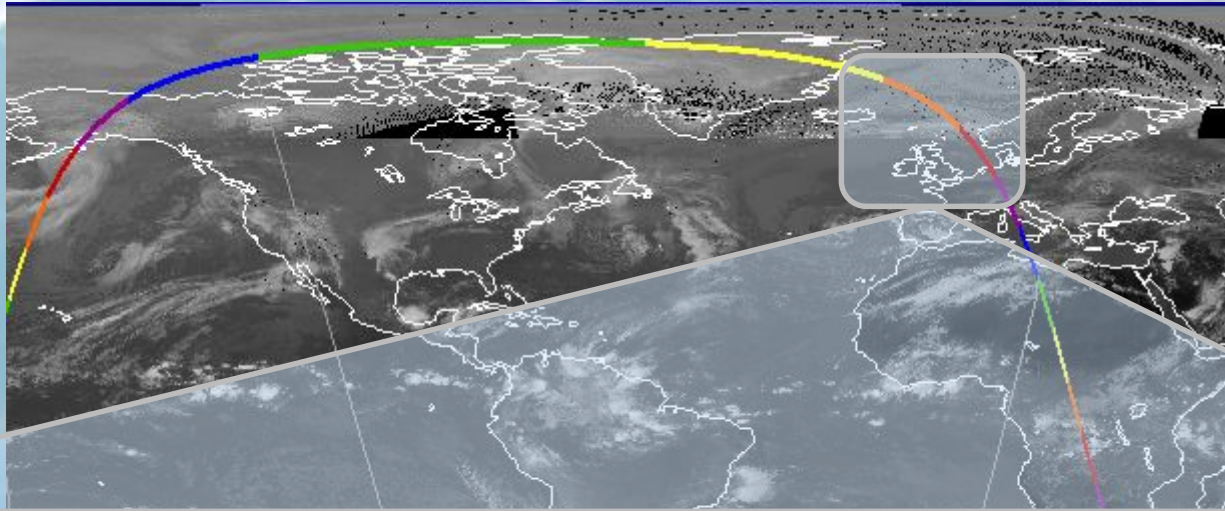
Some data from satellites over Europe (15.04.2010).



 EUMETSAT



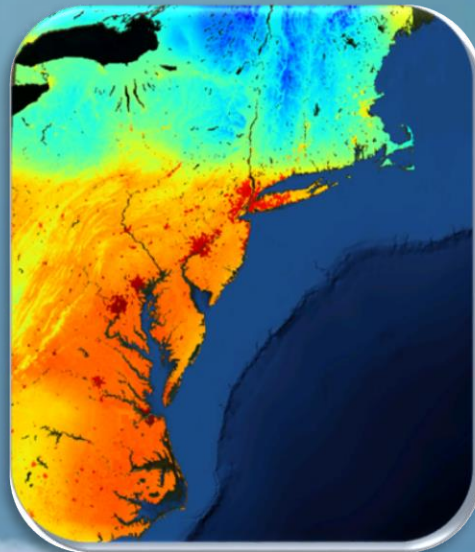
Cloudsat data from satellites over Europe
(16.04.2010).



Conclusion.

Calipso gives useful data to understand atmospheric phenomena like aerosols. Those data could be compared with ground measures and other satellites data.

Satellites provide several kind of data, and could help us understand more about energetic relationships in atmosphere (like carbon dioxide effects on global warming,...).



Thank you for your attention.

