



P R O M O T E  
P R O T O C O L M O N I T O R I N G  
F O R T H E G E M E S S E R V I C E E L E M E N T  
A T M O S P H E R E

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# General Background

## PROMOTE: A project of the European Space Agency

- EC and ESA developed **GMES**, the European contribution to GEOSS
  - ◆ GMES: Global Monitoring for Environment and Security
  
- ESA Programme: GMES Service Element (GSE) Projects
  - ◆ GMES-applicable capabilities in Europe already exist
    - ❖ target operational & sustainable information services
    - ❖ respond directly to the needs of users, primarily in support of policies
  
  - ◆ focus on services using mainly Earth Observation sources
    - ❖ draw on results obtained from past and present EO satellites
    - ❖ provide recommendations for future EO systems

## Background on PROMOTE

- PROMOTE Stage 1: Consolidation      20 months (2004 – 2006)
  - ◆ 1 of 13 GSE projects dealing with the atmosphere
  
- PROMOTE Stage 2: Scaling-up      36 months (KO: July 2006)
  - ◆ Aim is to be able to contribute to the GMES Pilot Service on Atmosphere
  
- PROMOTE Service Portfolio Themes
  - ◆ Stratospheric Ozone and Surface UV Radiation
  - ◆ Air Quality
  - ◆ Greenhouse and Reactive Gases

## User Focus in GSEs

- All services provided in GSE projects must have formally named user organisations as recipient
  - ◆ Formal mechanism is a Service Level Agreement (SLA)
- All GSE projects have an official User Federation task and a User Executive Board
- All GSE projects have formal annual service evaluations
  - ◆ ESA funding from year-to-year dependent upon user satisfaction

# PROMOTE Users

## 56 Service Level Agreements (SLAs)

- Local, regional and national public agencies
  - ◆ Environmental agencies (D, A, IR, UK, F, B, NL, I, CH, FI, E)
  - ◆ Meteorological Institute (D,P)
- International Organizations
  - ◆ WMO
  - ◆ ECMWF
  - ◆ NILU/EMEP
- User Federating Groups
  - ◆ Professional Society of German Dermatologists
  - ◆ European Environmental Agency
  - ◆ SPARC-CCMVal: Climate Modelling Validation

# Greenhouse and Reactive Gas Service

## ➤ Products

- ◆ Global **methane & carbon dioxide** records from satellite data
  - ❖ Partially delivered records with extensions in years 2 & 3
- ◆ Records of **stratospheric methane & water vapor**
- ◆ **Volcanic activity** indicator via detection of high levels of **sulfur dioxide**

## ➤ Users (5 SLAs)

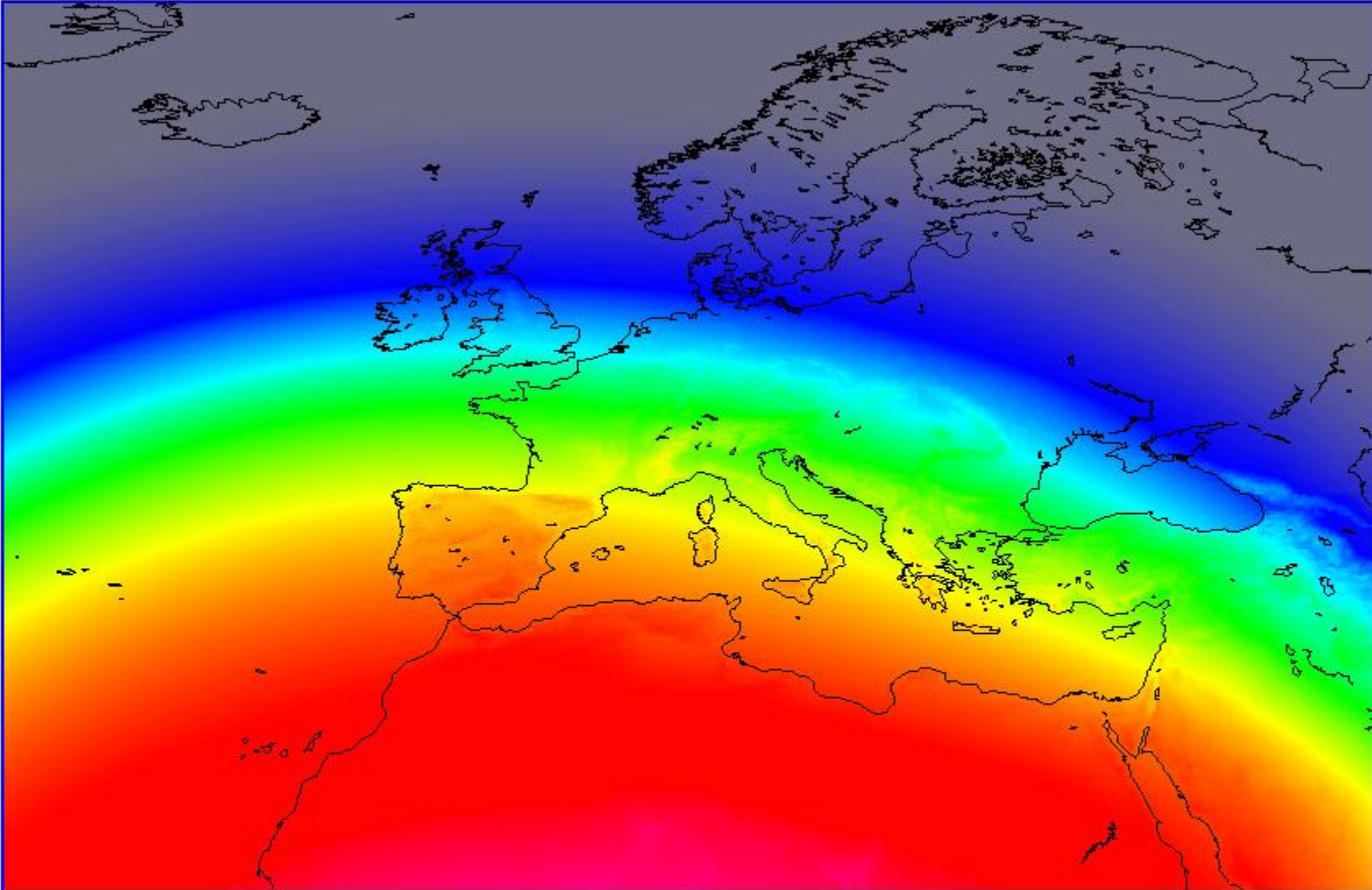
- ◆ typically research users using retrieved values for assimilation into models

## ➤ Applications

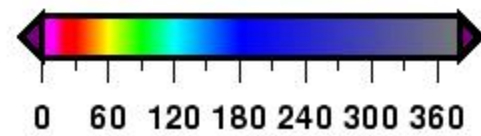
- ◆ Inputs to and optimizations of Climate Change models
- ◆ Source and sink apportionment for Greenhouse Gases
- ◆ Commercial aviation

# Stratospheric Ozone and Surface UV Radiation Service

- Products
  - ◆ **Global ozone columns** (record, NRT, forecasts) and **profile** (record)
  - ◆ **Global Surface UV** Radiation record
  - ◆ On-demand **personalized sunburn-time information**
  
- Users (11 SLAs)
  - ◆ Full range of users: international, national, local, citizens
  
- Applications
  - ◆ Monitoring of the recovery of the stratospheric ozone layer
  - ◆ Improvements in weather forecasting
  - ◆ Health of European Citizens regarding skin cancer



Monthly mean sunburn times [min] for February at 12:00 UTC



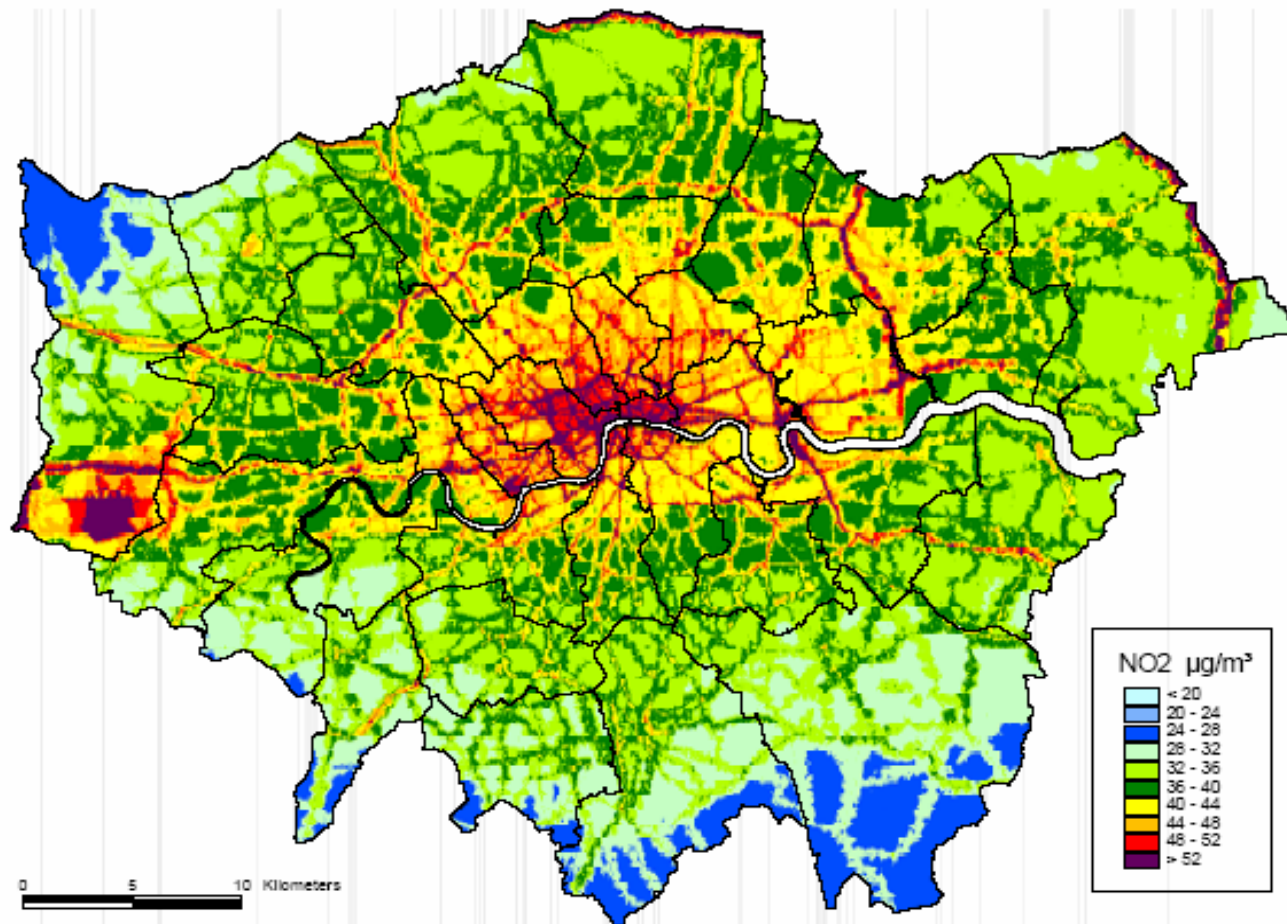
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# Air Quality Service

- Products
  - ◆ **Global Air Quality records**
  - ◆ **European-scale Air Quality analyses and forecasts** (daily)
  - ◆ **Local-scale Air Quality forecasts, assessments, and scenarios**
  - ◆ **Particulate Matter**: desert dust, volcanic ash, pollen, ground-level PM
- Users (40+ SLAs)
- Applications
  - ◆ monitoring of levels and changes in global pollutant levels
  - ◆ improvement and optimization of climate change models
  - ◆ assessments of European and national air quality
  - ◆ minimization of health impacts to European citizens, especially those with heart or respiratory illnesses

# Example: Local Air Quality forecasts



# Feedback on Air Quality

- Greater London local air quality
  - ◆ Stage 1: One Borough was interested and evaluated the service
  - ◆ Stage 2: More than 20 Burroughs are now using the service
- Health application example: **The AirTEXT Project**
  - ◆ send air pollution alerts to vulnerable individuals via SMS text message based on air quality forecasts
  - ◆ Benefits expected stem from reduction in resource implications on National Health Service by enabling patients to self-manage their symptoms

# PROMOTE

## User Federation

### User Exec Board

- User Federation composed of all users with signed SLAs
  
- User Executive Board – 9 members
  - ◆ speaks on behalf of UF and serves as formal representation within service network
  - ◆ facilitates overall steering of the project from the user perspective
  - ◆ aims at ensuring services that are strongly user-driven
  - ◆ acts as an interface between the demand and supply sides of the project
  
- User Executive Board Activities
  - ◆ review and endorse annual work plans
  - ◆ coordinate the feedback of the entire user federation
  - ◆ formulate an independent executive summary of user needs and priorities for the future
  - ◆ enable a common understanding of service needs and implementation requirements
  - ◆ extend the user base