

# Main Activities / Stelios Kazadzis

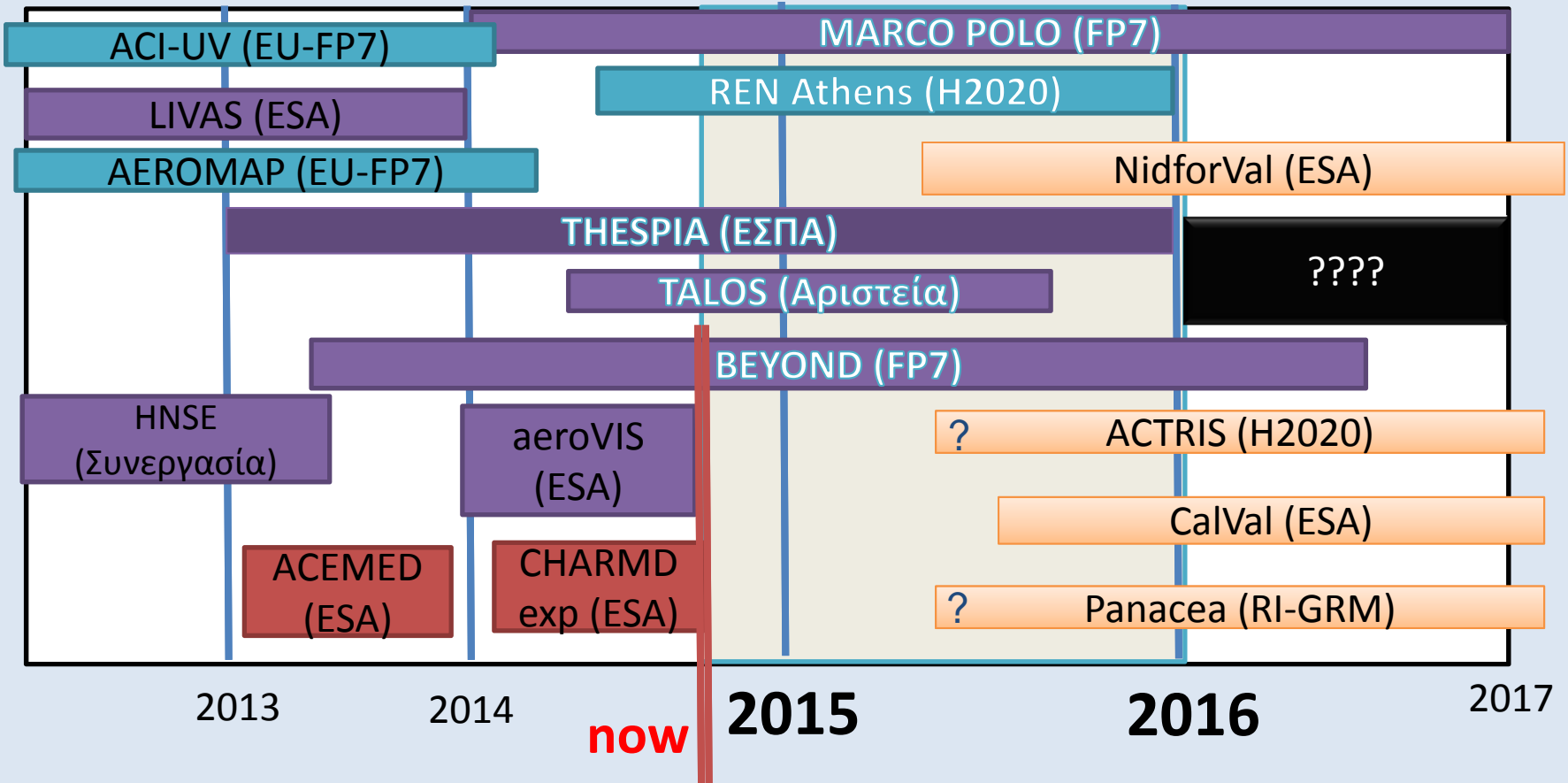
- Solar radiation measurements/modeling
- Aerosol optical properties
- Solar Energy

Participation in projects  
New proposals  
Services  
Infrastructure  
Supervising  
publications

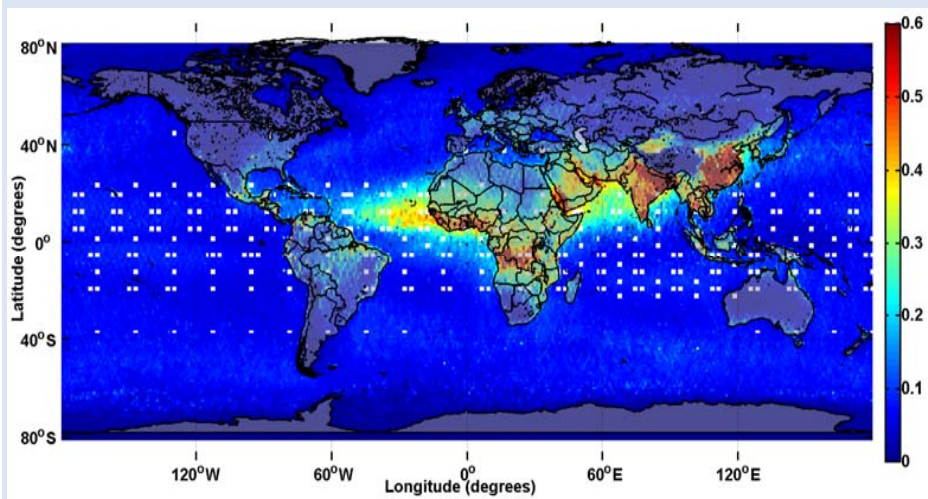


# Participation in projects

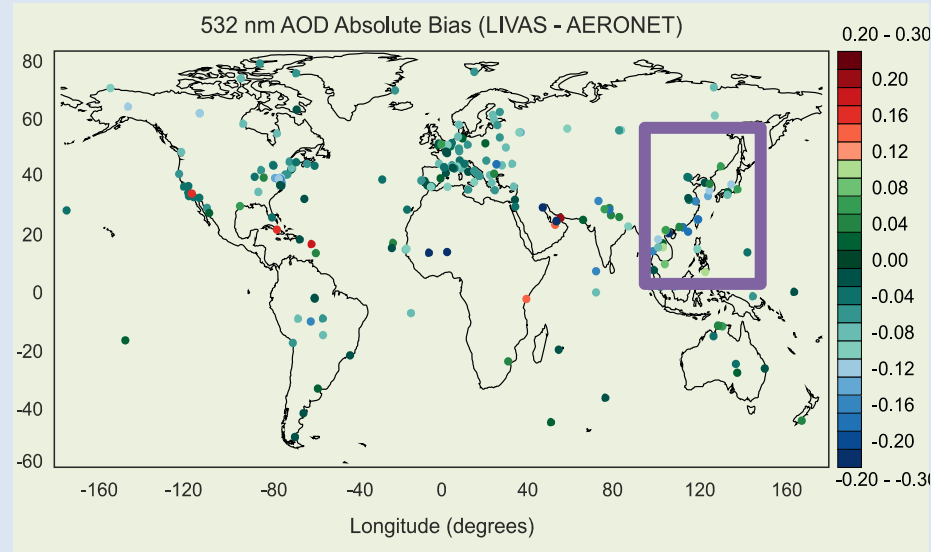
Planning/time schedule 2015-2016



# Participation in projects



2006-2013 year AOD global mean



Global AOD satellite validation

MARCO POLO (FP7)

The main objective of this project is to improve air quality monitoring, modelling and forecasting by improving the emission database over China using satellite data.

NOA: Links between satellite and in situ aerosol measurements at specific events

Fp7 Space, 3 years, 11 European & 4 Chinese partners

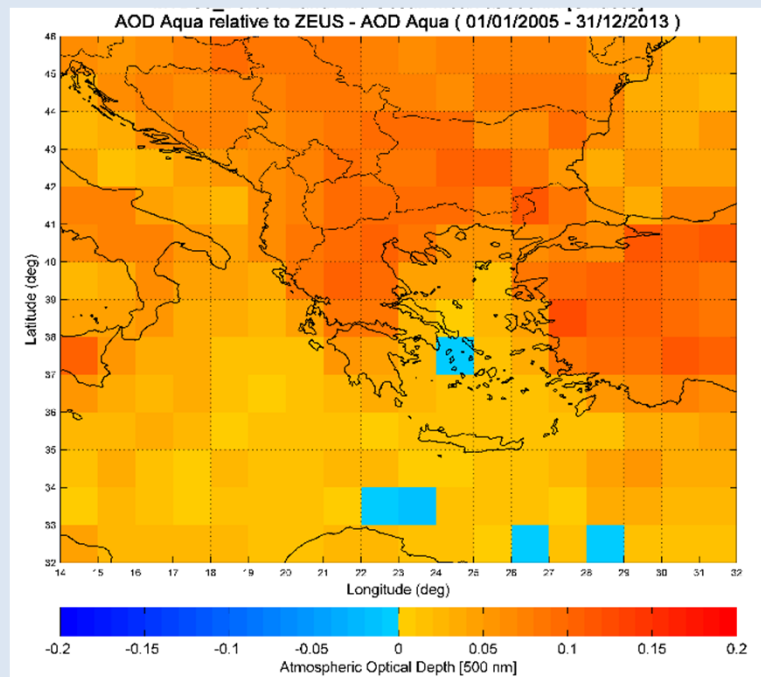
Res. Inv.: V. Amiridis

SK: 10%: Satellite vs ground based comparison

NOA/All (kEuro): 200/1940



## Participation in projects



TALOS (Αριστεία)

Research on thunderstorm activity. Long term statistics using Zeus, short term and long term forecast, aerosol influence.

Αριστεία, 2 years,

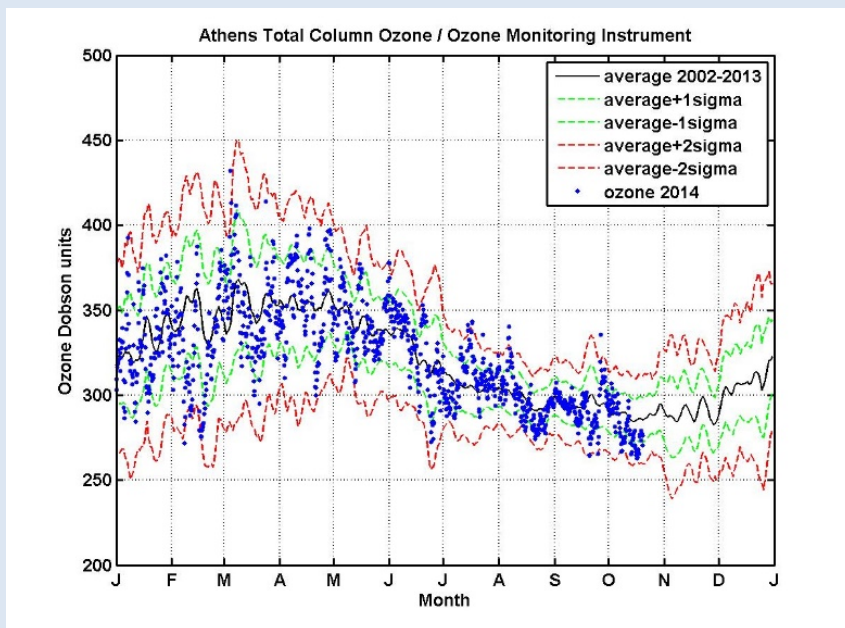
Res. Inv.: K. Lagouvardos, V. Kotroni

**SK: 10%**, Aerosol load and lightning activity

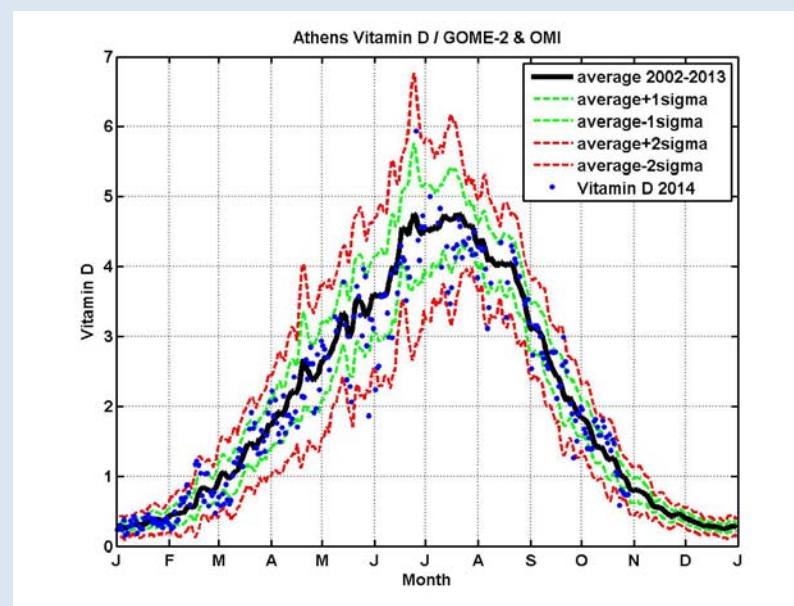
**NOA/All (kEuro): 258/258**



## Participation in projects



Real time, total column Ozone, Athens



Vitamin D efficiency, Athens

BEYOND (FP7-SA)

Building Capacity for a Centre of Excellence dedicated to Natural Disaster Management in southeastern Europe,

FP7 Supporting action, 3 years,

Res. Inv.: IAASARS & K. Lagouvardos, V. Kotroni, E. Gerasopoulos,

**SK: 15%**, Provision of satellite based air quality indicators, UV and health effects, MODIS antenna atmospheric products organization and control

**NOA/All (kEuro): ~200 (IERSD) /2800**



## Participation in projects



2014 ΒΡΑΒΙΑ  
ΤΟΥ ΕΡΕΥΝΗΤΗ

REN Athens (H2020)

Organization of the Researcher's night 2014 (NCSR) and 2015 (NOA)

H2020 MSC, 2 years,

Res. Inv.: (D. Kopania, P. Droutsas, K. Mazi)

**Role: PI, 10%:** Organization of NOA's contribution for 2014, organization of the event (2015), assessment of the events (2014-2015)

**NOA/All (kEuro): 50/50**



## Participation in projects



THESPIA (ΕΣΠΑ)

The main objective of the Project is to promote atmospheric research through synergistic and integrated approaches for developing and implementing specialized methodologies and tools.

ΕΣΠΑ Nat. infrastructures, 3 years,

Res. Inv.: N. Mihalopoulos, E. Gerasopoulos, A. Retalis, E. Liakakou, V. Asimakopoulou, H. Kampetzidis, B. Psiloglou, K. Lagouvardos, V. Kotroni

Role: PI of WP1, dep. PI, 25%,

NOA/AII (kEuro): 1014/1014



## Proposals - future

ACTRIS II - ESFRI  
(2015-2020)

Aerosols, Clouds, and Trace gases Research  
InfraStructure Network

**Role:** Researcher

**Time:** 10%

PANACEA – Hellenic  
Roadmap for Research  
Infrastructure  
(2015-2020)

PANhellenic infrastructure for Atmospheric Composition  
and climatE chAnge

**Role:** Researcher

**Time:** 5%

NidforVal (ESA)

Sentinel 5P Nitrogen Dioxide and FORmaldehyde Validation  
using NDACC and complementary FTIR and UV-Vis DOAS  
ground-based remote sensing data

**Role:** NOA, PI

**Time:** 10%

CaVal (ESA)

Calibration and sentinel validation activity

**Role:** Researcher

**Time:** ?

2010 -2014: Proposals 26 (11) - funded 14 (3)





# Services

Solar UV Index Forecast

Solar Energy calculation

Solar Energy forecast

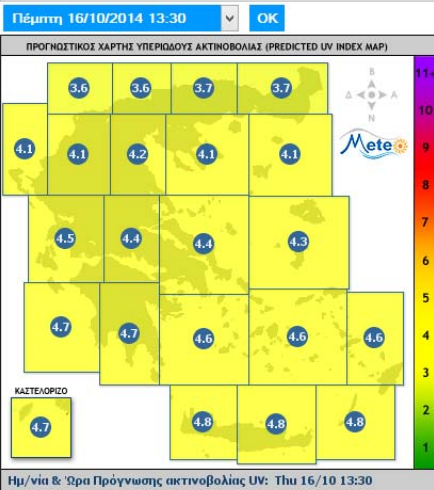
Aerosol optical properties from satellite sensors



# Solar UV Index Forecast

## ΧΑΡΤΗΣ UV

Επιλέξτε από το drop down μενού κάτω την αντίστοιχη ημερομηνία και ώρα που επιθυμείτε για να πάρετε πρόβλεψη ακτινοβολίας UV για όλη την ελληνική επικράτεια ή κάντε κλικ στο αντίστοιχο τετράγωνο της περιοχής που επιθυμείτε για αναλυτική πρόγνωση στην συγκεκριμένη περιοχή. Οι προγνώσεις στον χάρτη γίνονται για συνθήκες μέγιστης έκθεσης ( ανέφελος ουρανός). Σε περίπτωση παρουσίας νεφών ο δείκτης μειώνεται από 10% (μικρή νεφοκάλυψη - λεπτά νέφη), έως και 80% (ολική νεφοκάλυψη - πυκνά νέφη). Η πρόγνωση του δείκτη UV με βάση και την πρόγνωση των νεφών παρουσιάζεται επιλέγοντας στο χάρτη την περιοχή ενδιαφέροντος.



### ΤΕΛΕΥΤΑΙΕΣ ΠΑΡΑΤΗΡΗΣΕΙΣ UV

ΑΜΦΙΚΛΕΙΑ	1.6
ΑΝΔΡΟΣ	1.7
ΔΡΑΜΑ	1.4
ΘΕΟΛΟΓΟΣ ΦΘΙΩΤ.	1.9
ΚΡΑΝΙΔΙ	2.6
ΜΑΡΚΟΠΟΥΛΟ	2.2
ΜΕΤΣΟΒΟ	1.7
ΜΥΡΙΚΗ ΚΑΡΠΕΝ.	1.9
ΠΑΤΡΑ ΡΩΜΑΝΟΣ	1.8
ΡΟΔΟΣ ΠΟΛΗ	2.5
ΣΑΓΑΙΙΚΑ	2.5
ΣΠΑΤΑ	1.9
ΤΑΝΑΓΡΑ ΕΛΒ	2.0
ΦΙΛΩΡΙΝΑ	0.0
ΦΟΥΡΦΟΥΡΑΣ ΡΕΘΥΜΝΟΥ	2.6
ΧΑΝΙΑ Ακρωτήρι	2.2



Σελήνη: 23 ημερών

Επόμενη Πανέλλης:  
Πέμπτη, 6 Νοεμβρίου 2014



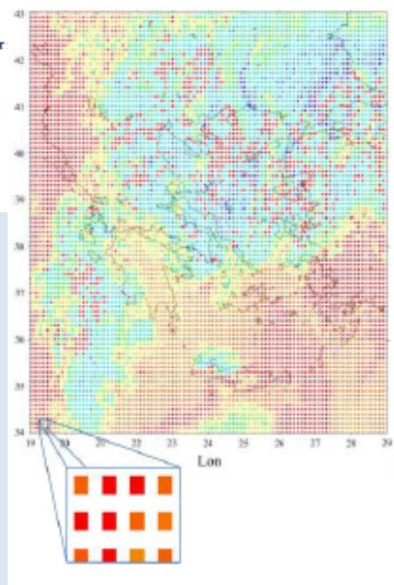
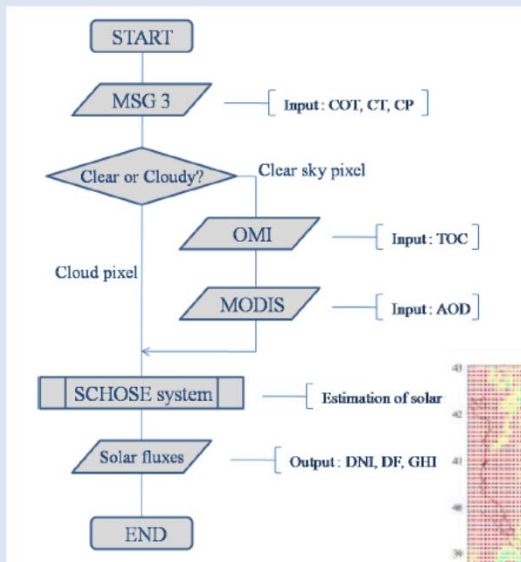
Free at [meteo.gr](http://meteo.gr)

Mobile application

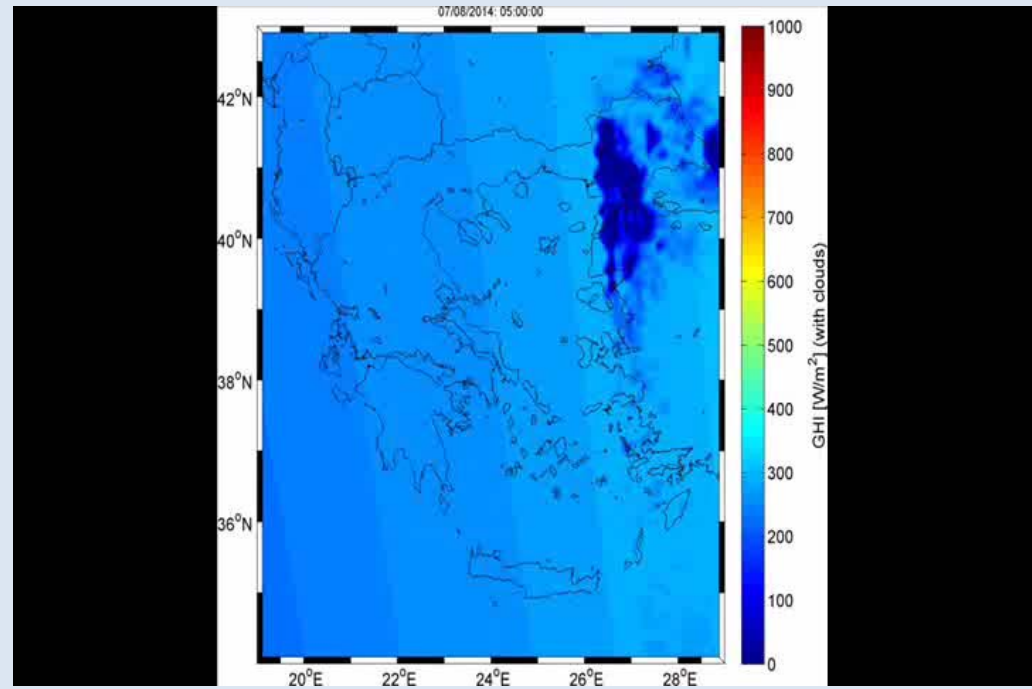
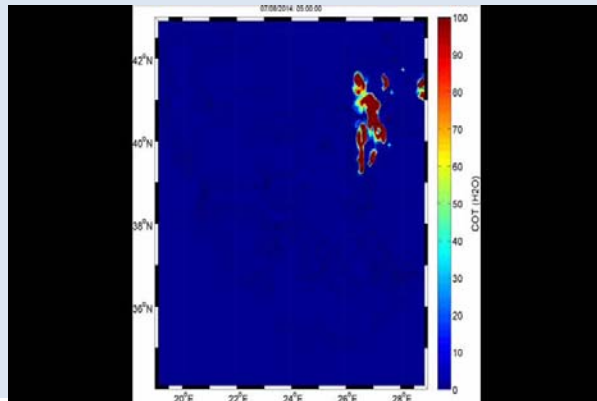
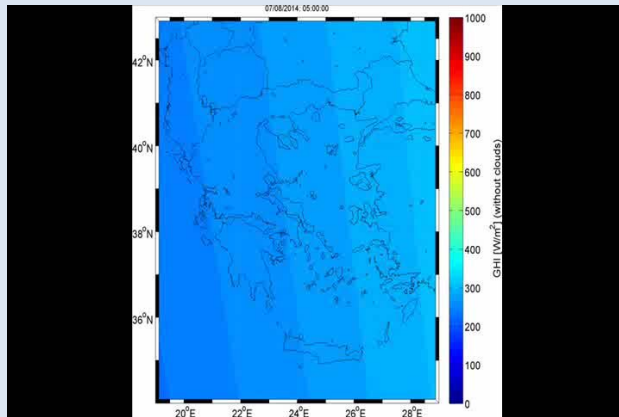
Income: ads ~20Ke/4 years



# Solar Energy calculation



# Solar Energy calculation



# Infrastructure

## Instrument platform development

- Global networks (AERONET, WMO, Pandonia),
- ESA cal/val activities
- Monitoring
- New algorithm development (NO<sub>2</sub>, O<sub>3</sub>, HCHO)

Radiometric station of Thiseio & Penteli

Solar and UV meteo network upgrade

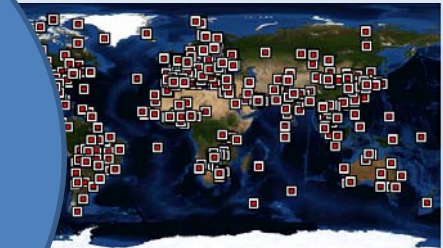


# Radiometric platform



## PSR (DAVOS/W

Total & direct spect  
(320-1050 nm)  
Spectral AOD  
Water vapor  
All weighted effects



## AERONET (NASA/AERONET)

Aerosol Optical properties  
Aerosol fluxes

ACTRIS  
PANACEA  
ESA Cal Val  
Monitoring  
Campaigns



# PhD - Supervising

Panagiotis Raptis, *Nat. and Kapodestrian Univ. of Athens*, “Development of methodologies for the retrieval of aerosols and trace gases using solar spectral measurements”, 2014-

Panagiotis Kosmopoulos, *Aristotle Univ. Thessaloniki*, “Methods of forecasting solar energy using ground base and satellite based data”, 2013-

Manolis Proestakis, *Univ. of Patras*, “Investigation of the cloud indirect effect with ground based and satellite measurements”, 2014-

Myrto Gratsea, *Univ. of Crete*, “Measurements of Trace gases over Athens area with remote sensing techniques”, 2014-

Christina Koti, *Univ. of Patras*, “Measurement techniques for solar radiation assessment for energy applications”, 2012-



# Publications 2015-2016

## First author

Solar Energy model long term forecasting (PK, KL, VK)	70%, meteo - PhD
LIVAS overview results (NOA, IFT) (VA)	90%, LIVAS +MP
Marine and Dust aerosol contribution (PR)	50%, Charedmexp
PSR instrument characterization and validations (WORCC, PR.)	30%, Thespia
Long term visibility over Greece +AOD (DF, VG, ML))	30%, -
Solar UV index meteo network (D.K., KL, VK)	30%, meteo - UV
Solar Energy nowcasting and short term forecasting (PK,)	60%, -
Column ozone retrieval using uvmfr (PR+Ac.Ath)	90%, thespia
Solar radiation time series Thiseio (comecap follow up) (+)	70%, comecap
Global water vapor / satellite sensors (BSC)	20%, -
Solar Radiation tilted Surfaces (V.P., P.R.)	50%, comecap
Aerosols & Lightning activity (M.P. +)	50%, Talos
Dust aerosol & cyclones (MF, KL, VK)	80%, Beyond
China satellite validation (VA)	30%, Marco Polo



Editor: Atmospheric Chemistry and Physics



# Atmospheric Physics and Chemistry Group

<http://apcg.meteo.noa.gr>

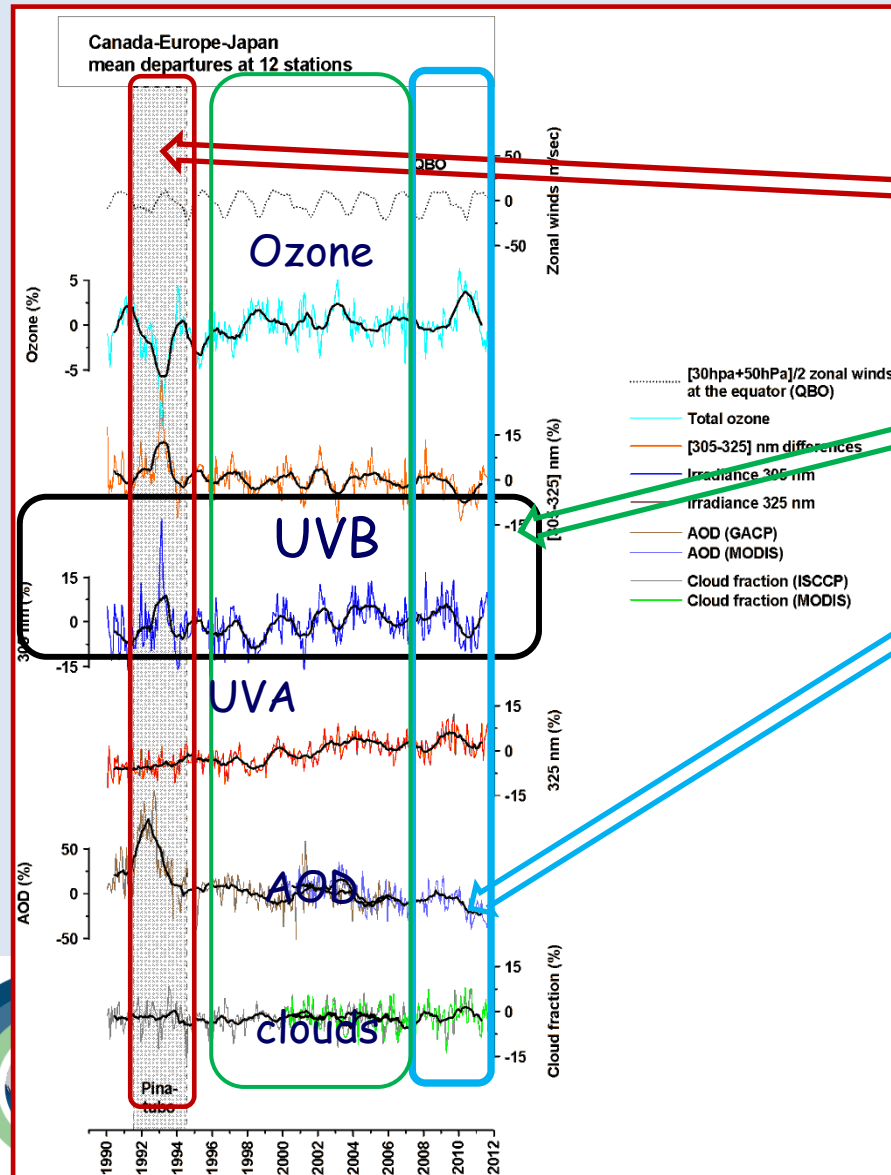
**5 researchers**  
**2 Tech/sci**  
**5 post doc**  
**5 PhD students**  
**1 MSc**

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Ευχαριστώ για την προσοχή σας

# Solar radiation measurements/modeling



12 stations: Europe - Canada - Japan  
UV measurements >15 years

a. Pinatubo period

b. UV increase

*O3 +1%/dec, aod: -10%/dec*

*UvB: +3%/dec UVA: +5%/dec*

c. Possible signs of UV stabilization?

Ozone vs AOD

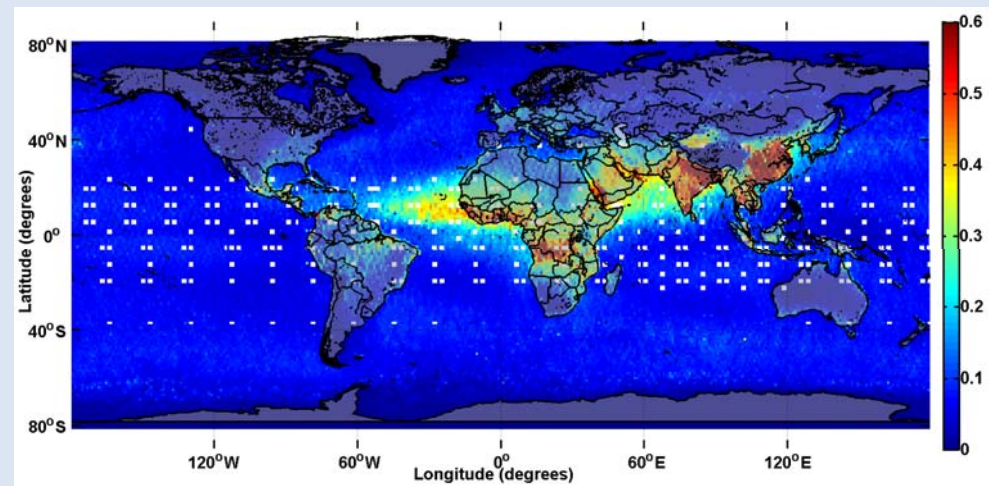
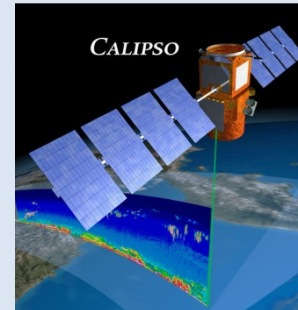
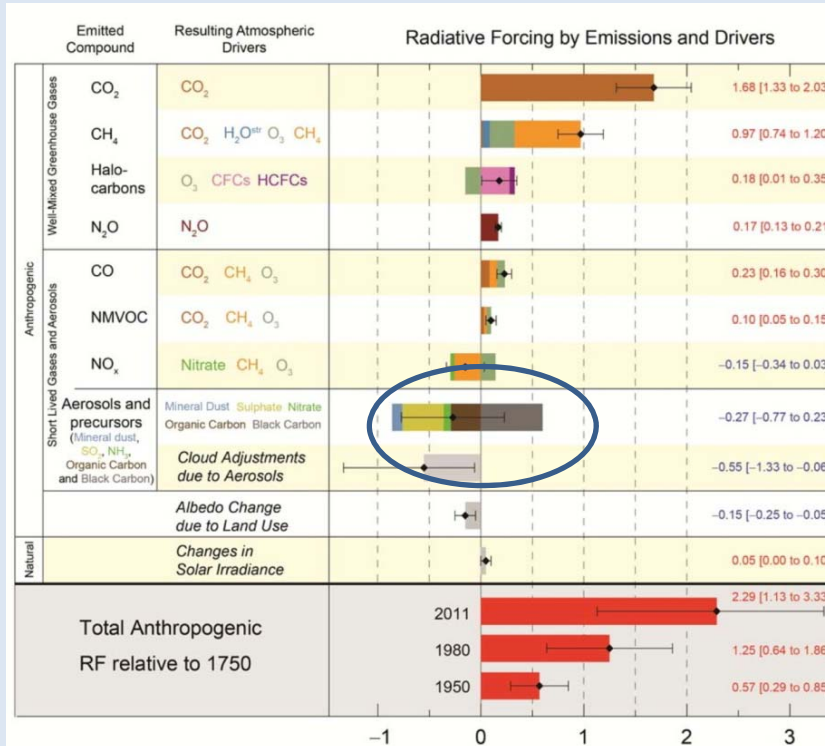
Ozone: + / UV: -

AOD: - / UV: +

UV peak (2006-2007)

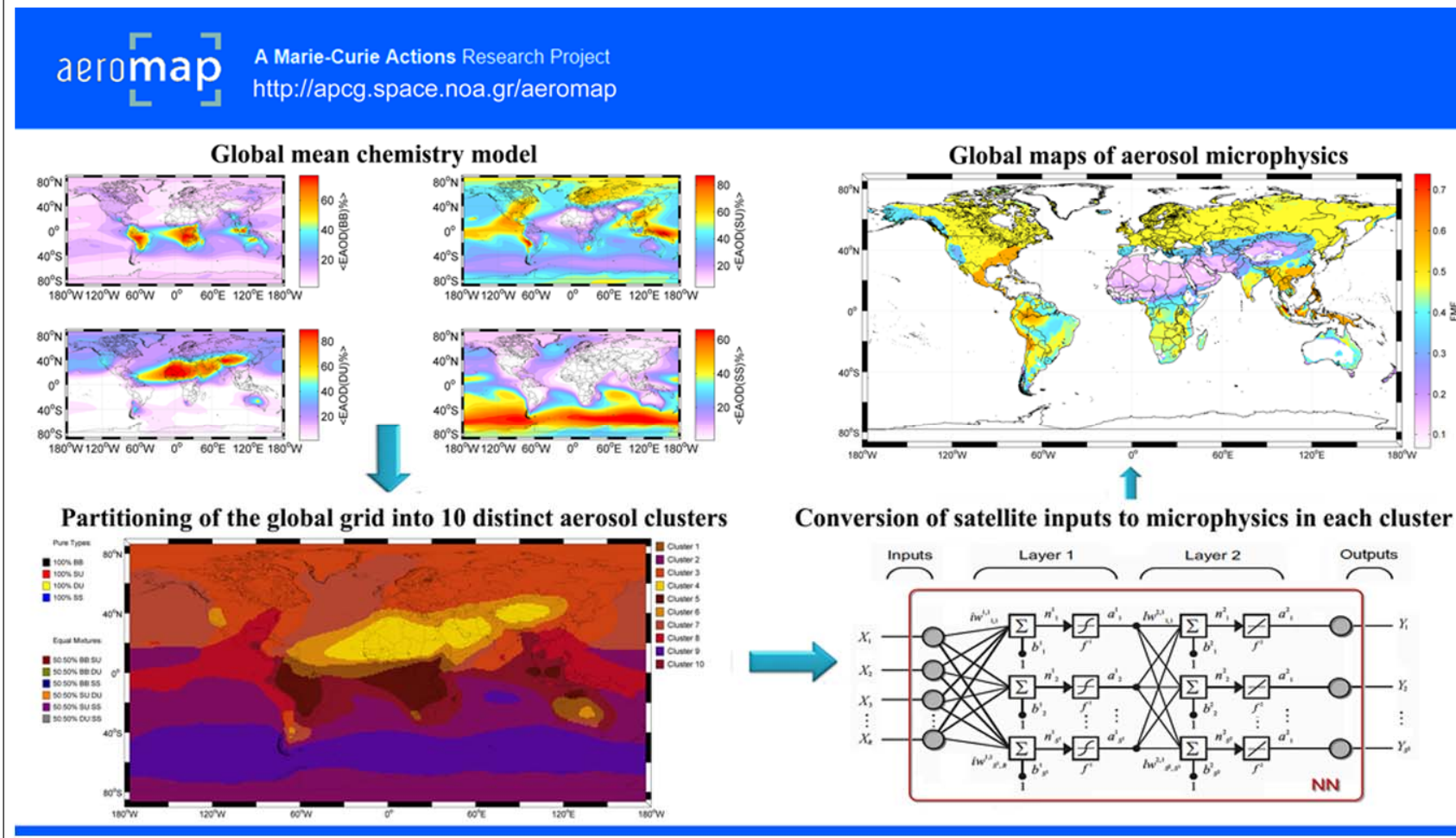
If AOD ~ stabilize ?

# Aerosol optical properties

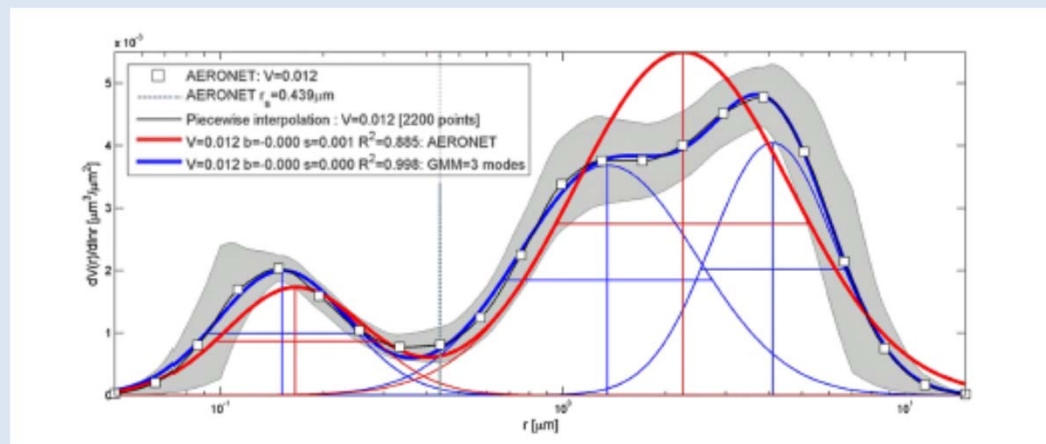
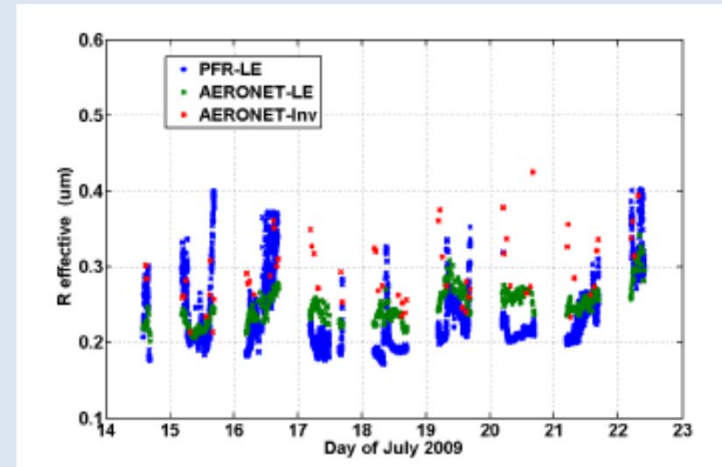
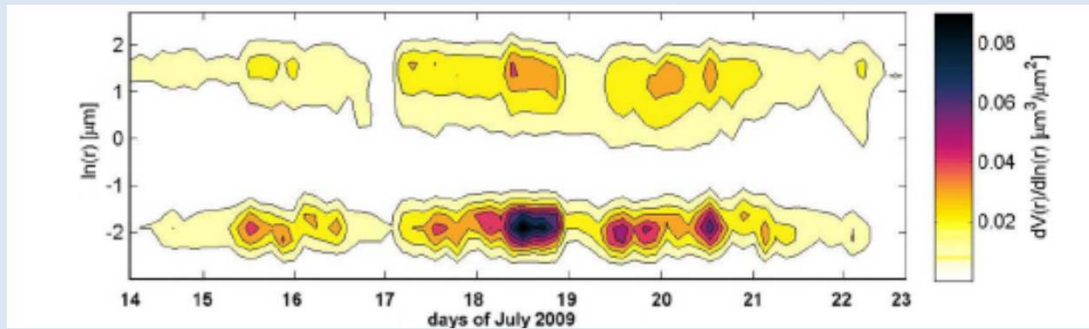


# Services

## Aerosol optical properties from satellite sensors



# Aerosol optical properties



# Solar Energy

