



HELLENIC NATIONAL  
**METEOROLOGICAL**  
SERVICE  
ΕΘΝΙΚΗ ΜΕΤΕΩΡΟΛΟΓΙΚΗ ΥΠΗΡΕΣΙΑ

# Agrometeorological services in Greece

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**Workshop on Agrometeorology for Farmers in Hotter, Drier and Wetter Future**  
9-11 November 2016 Ljubljana, Slovenia  
**WMO - Environmental Agency of Slovenia/Tromp Foundation**

# Agrometeorological services in Greece

Past (last 40 years)

Compensation payments **VS** Agrometeorological services

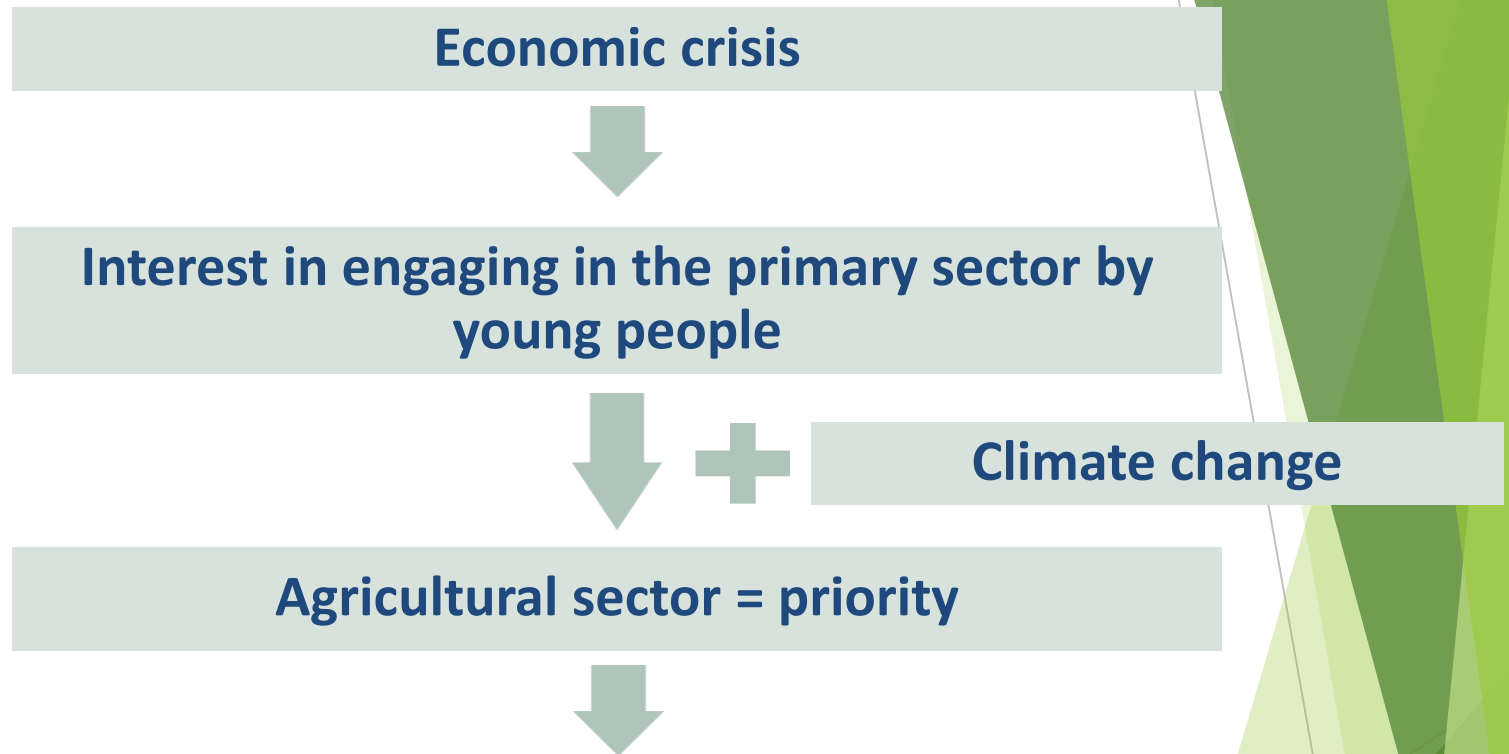


Communication difficulties between scientists & farmers



**Agrometeorological services = limited demand & attention**

## Present



**Agrometeorological services = of utmost importance**



## NATIONAL STRATEGIK PLAN FOR CLIMATE ADAPTATION

..... *Due to the increasing impact of climate change on society, European countries have already begun planning their national strategies and implementing national adaptation plans, with priority sectors these of health, agriculture, water resources and sea level (see <http://climate-adapt.eea.europa.eu/>).....*



HELLENIC REPUBLIC  
Ministry of Rural Development and Food

Strategic Targets for Agricultural  
Development And Restructuring of the  
Countryside

..... *The economic crisis of recent years combined with high unemployment rates, demonstrated the importance of the primary sector and established that farming is a viable professional choice.....*

# Agrometeorological services in Greece

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## Those involved

- ✓ **The Ministry of Rural Development and Food**
- ✓ **HNMS- Hellenic National Meteorological Service**
- ✓ **Universities, Institutions**
- ✓ **Private parties**

# Agrometeorological services in Greece



HELLENIC REPUBLIC  
Ministry of Rural Development and Food

## Regional Centers for Plant Protection (7)

- local agro met stations networks
- plant protection guidelines



## ELGA - Hellenic Agricultural Insurance Organization

- Protection against Frost
- Protection against Hail

# Agrometeorological services in Greece



## ELGA - Hellenic Agricultural Insurance Organization Protection against Hail



Airplanes seed clouds with an ice-forming reagent (AgI)  
This method is implemented in parts of Central Macedonia –  
Covering an extent of 2,350,000 acres  
Operation period from April, 15 to September, 30.



Anti - Hail Cannons  
Eighty (80) anti-hail cannons  
Situated in five (5) provinces Kavala, Pieria, Larisa, Ilia,  
Messenia - Covering an area of about 60,000 acres

# Agrometeorological services in Greece

## Universities - Institutions



AGRICULTURAL UNIVERSITY OF ATHENS  
ΓΕΩΠΟΝΙΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ



## AGROMETEOROLOGY

An Applied Agrometeorological System for the  
Protection of the Environmental Resources and  
Farming Optimisation

The Project is co-funded by the European Union and by National Funds of Greece & Albania  
under the IPA Cross-Border PROGRAMME "Greece - Albania 2007-2013"



The IPA Cross-Border Programme  
**Greece - Albania**  
2007-2013  
FROM NEIGHBOURHOOD TO PARTNERSHIP

## Efficient Irrigation Management Tools for Agricultural Cultivations and Urban Landscapes (IRMA)



Total budget: 1.398.874,50€

Duration: 2,5 years; Launched: 1/4/2013; Completion date: 30/9/2015

Financing:

European Territorial Cooperation Programmes (ETCP) GREECE-ITALY 2007-2013

[www.greece-italy.eu](http://www.greece-italy.eu)

75% EU (ERDF) and 25% national funds of Greece and Italy

IRMA Subsidy Contract No: I3.11.06

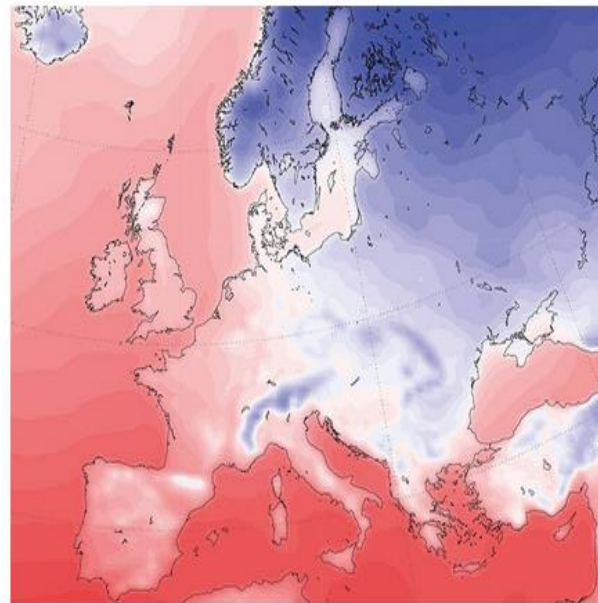


## HNMS- Hellenic National Meteorological Service • NWP models



About Forecasts Computing Research Learning Log In Search site Go

Forty years of advancing global NWP through co-operation

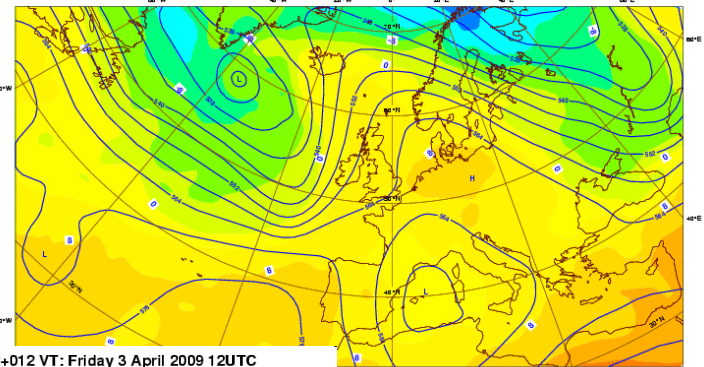


ECMWF unveils preview of new global climate monitoring tool

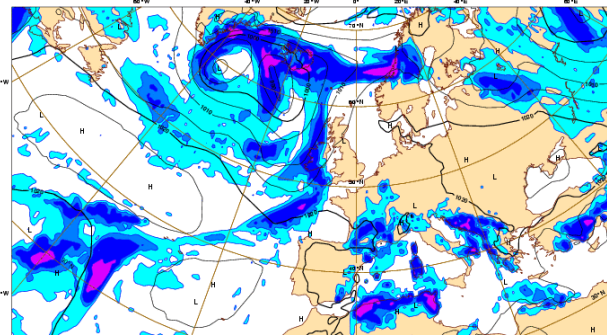
One year after the Paris Agreement on climate change, ECMWF launches its most powerful global climate monitoring tool to date, ERA5.

- Forecasters
- Researchers
- Commercial users
- Suppliers
- Public
- Press

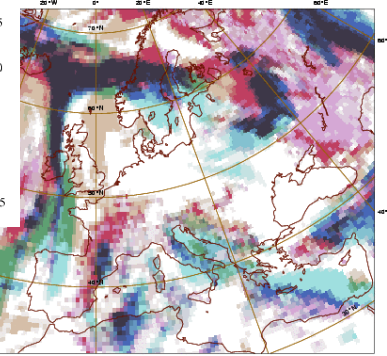
Friday 3 April 2009 00UTC ©ECMWF Forecast t+012 VT: Friday 3 April 2009 12UTC 850 hPa Temperature / 500 hPa Geopotential



Friday 3 April 2009 00UTC ©ECMWF Forecast t+012 VT: Friday 3 April 2009 12UTC Surface: Mean sea level pressure / 12hr Accumulated precipitation (VT-6h/VT+6h)



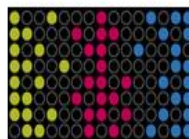
Forecast t+012 VT: Friday 3 April 2009 12UTC H+M+L clouds



Media centre



Publications

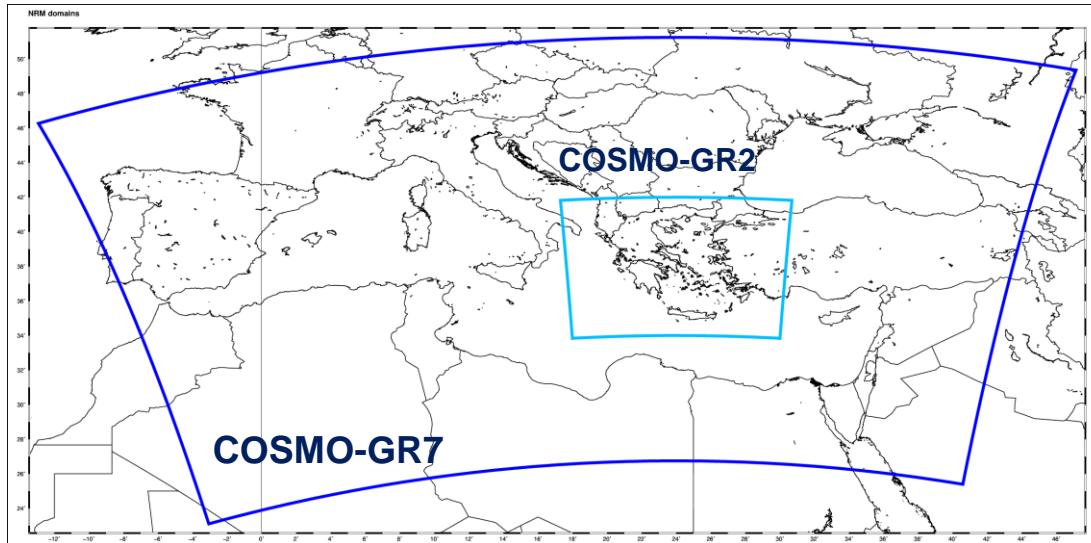


Scalability



Environmental services

HNMS- Hellenic National Meteorological Service • NWP models



COSMO model runs exclusively at ECMWF (version 5.03,  $\approx 7\text{km}$  resolution over Mediterranean (+72hr) and  $\approx 2.2\text{km}$  resolution over Greece (+48hr), twice a day (00h/12h)).

New COSMO model runs at ECMWF 4Km resolution over Mediterranean and 1Km resolution over Greece, twice a day (00h/12h). **Testing phase – operational summer 2017**

## HNMS- Hellenic National Meteorological Service

- met stations network – agro met stations

These met stations may not completely meet the WMO requirements to be characterized as agrometeorological but they give us some useful relative information



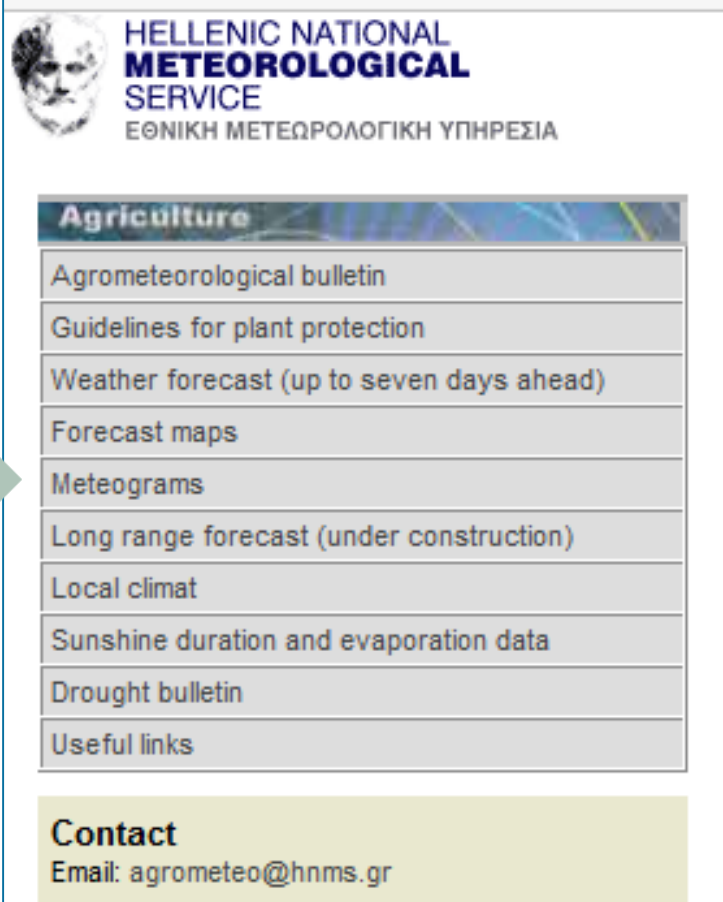
### Agrometeorological Data

- ❑ Temperature
- ❑ Relative Humidity
- ❑ Soil Temperature
- ❑ Sunshine Duration
- ❑ Precipitation
- ❑ Evaporation

## HNMS- Hellenic National Meteorological Service • Products

Delivering of basic agrometeorological information as a specific unity through the website

Information and interpretation according to the instructions of the WMO's "Guide to Agricultural Meteorological Practices (GAMP)"



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**Agriculture**

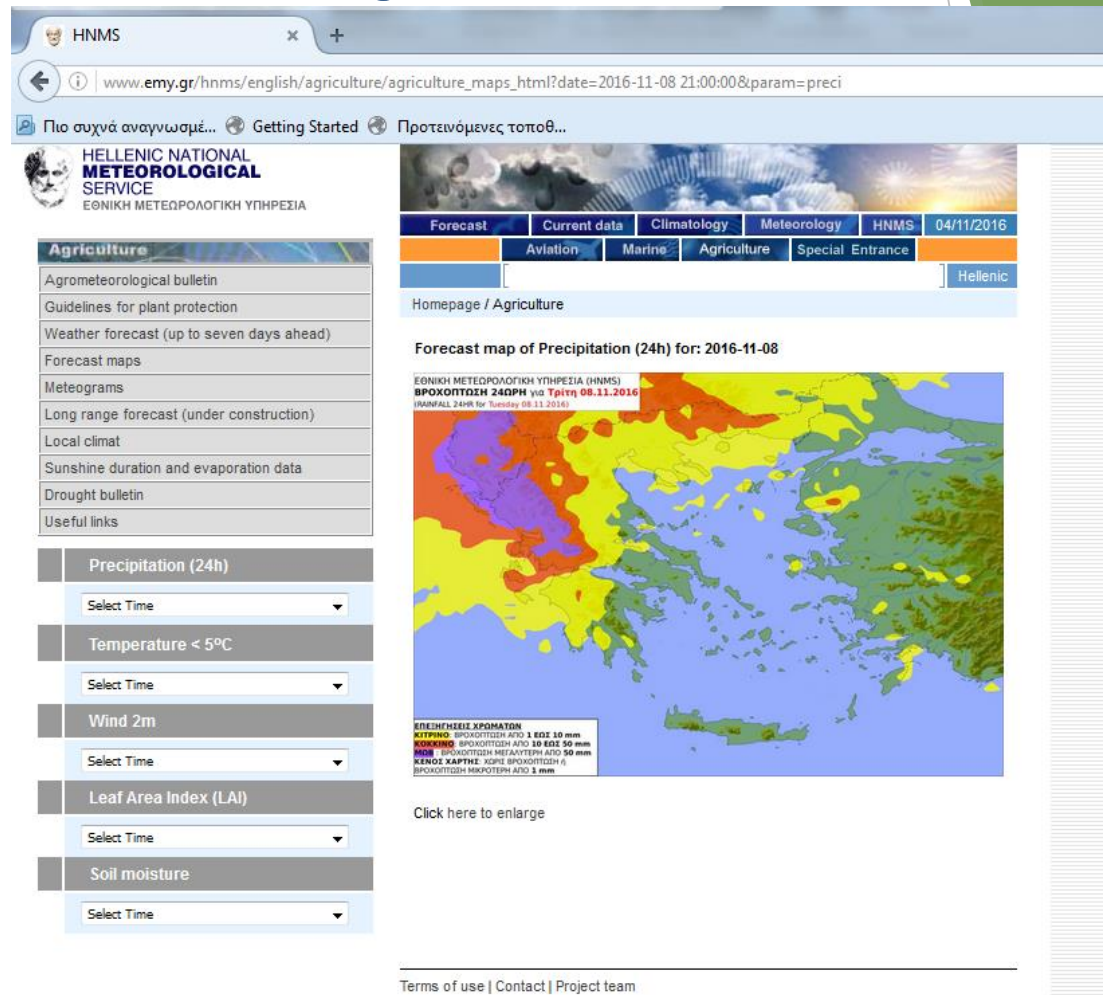
- Agrometeorological bulletin
- Guidelines for plant protection
- Weather forecast (up to seven days ahead)
- Forecast maps
- Meteograms
- Long range forecast (under construction)
- Local climat
- Sunshine duration and evaporation data
- Drought bulletin
- Useful links

**Contact**  
Email: [agrometeo@hnms.gr](mailto:agrometeo@hnms.gr)



## HNMS- Hellenic National Meteorological Service • Products

For example :  
The user can find **forecast maps** with the 24hours precipitation, or forecast maps with low temperatures  $< 5$ ,  $< 0$ ,  $< -5^{\circ}\text{C}$  that could cause damages to the crops

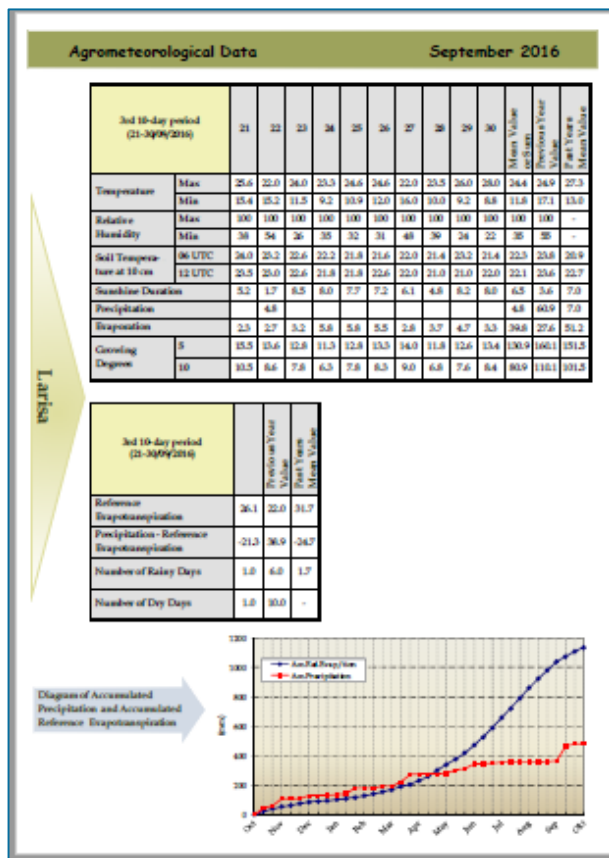


The screenshot shows the HNMS website interface. On the left, there is a navigation menu under the 'Agriculture' section with the following items: Agrometeorological bulletin, Guidelines for plant protection, Weather forecast (up to seven days ahead), Forecast maps, Meteograms, Long range forecast (under construction), Local climat, Sunshine duration and evaporation data, Drought bulletin, and Useful links. Below the menu, there are several filter options, each with a 'Select Time' dropdown: Precipitation (24h), Temperature  $< 5^{\circ}\text{C}$ , Wind 2m, Leaf Area Index (LAI), and Soil moisture. The main content area displays a 'Forecast map of Precipitation (24h) for: 2016-11-08'. The map shows Greece and surrounding regions with a color-coded precipitation forecast. A legend below the map indicates the color scale: ΚΕΥΚΟ (Precipitation from 1 to 50 mm), ΚΟΚΚΙΝΟ (Precipitation from 50 to 100 mm), ΠΟΡΦΥΡΟ (Precipitation between 100 and 500 mm), and ΚΑΡΜΙΝΟ (Precipitation from 500 mm to 1000 mm). A 'Click here to enlarge' link is provided below the map. At the bottom of the page, there are links for 'Terms of use', 'Contact', and 'Project team'.

## HNMS- Hellenic National Meteorological Service • Products

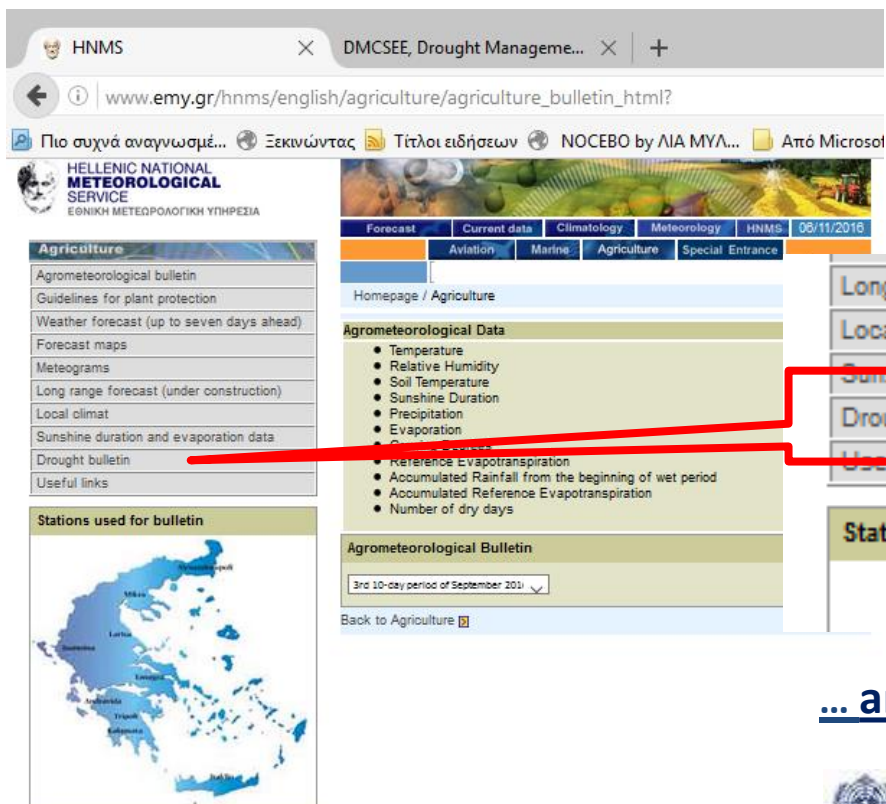
### The Agrometeorological Bulletin

with relative information for the aforementioned network of “agro Met Stations”



## HNMS- Hellenic National Meteorological Service • Products

### “The DMCSEE drought bulletin”

HNMS × DMCSEE, Drought Manageme... × +

www.emy.gr/hnms/english/agriculture/agriculture\_bulletin\_html?

Πιο συχνά αναγνωσμέ... Εξκινώντας Τίτλοι ειδήσεων NOCEBO by ΛΙΑ ΜΥΛ... Από Microsof

HELLENIC NATIONAL METEOROLOGICAL SERVICE ΕΘΝΙΚΗ ΜΕΤΕΩΡΟΛΟΓΙΚΗ ΥΠΗΡΕΣΙΑ

Forecast Current data Climatology Meteorology HNMS 08/11/2016

Aviation Marine Agriculture Special Entrance

Homepage / Agriculture

**Agrometeorological Data**

- Temperature
- Relative Humidity
- Soil Temperature
- Sunshine Duration
- Precipitation
- Evaporation
- Drought bulletin
- Reference Evapotranspiration
- Accumulated Rainfall from the beginning of wet period
- Accumulated Reference Evapotranspiration
- Number of dry days

**Agrometeorological Bulletin**

3rd 10-day period of September 2011

Back to Agriculture

**Stations used for bulletin**

Agrometeorological bulletin

Guidelines for plant protection

Weather forecast (up to seven days ahead)

Forecast maps

Meteograms

Long range forecast (under construction)

Local climat

Sunshine duration and evaporation data

Drought bulletin

Useful links

Long range forecast (under construction)

Local climat

Sunshine duration and evaporation data

Drought bulletin

Useful links

... and other useful links:



(CAgM)/WMO



Terms of use | Contact | Project team

## HNMS- Hellenic National Meteorological Service Future Plans

- Meteorological products - services to meet the farmers' essential requirements
- Weather forecasts - warnings tailored to the farmers' needs

### **Strategic goal**

#### **National framework for Agrometeorological services provision**

Recording of competent bodies, delineation of responsibilities- distinct roles, avoidance of overlaps, promotion of cooperations





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# Agrometeorological services in Greece

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## Thank you for your attention

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