

Finokalia Station - University of Crete (Greece) – ECPL

Institution information

The Environmental Chemical Processes Laboratory (ECPL) was established in 1997 by the Department of Chemistry and the Senate of University of Crete as an independent unit of the Division of the Environmental and Analytical Chemistry.

ECPL activities concern both education and research. Under-graduated and graduated students at the Department of Chemistry are introduced to topics on Environmental Chemistry and post-graduated students can focus their studies on environmental chemical processes and their role in the environment. The teaching activities of ECPL mainly concern Environmental Analytical Chemistry, Environmental Organic Chemistry, Atmospheric Chemistry and Global Change, Aquatic Chemistry, Chemical Computing and Environmental Computing. The ECPL personnel are collaborating with other Greek and foreign Universities in teaching in post-graduate programs and organizing international workshops and summer schools.

The research activities of ECPL cover a wide range of topics in Environmental sciences. In Atmospheric Chemistry, research is focused on ozone, nitrogen and sulfur budgets, secondary aerosol formation, persistent organic pollutants (POPs), interactions between gaseous and particulate phase and chemistry – climate interactions.

Site information

Measurement site: Finokalia
Country: Greece
Code: GR02
Database code: GR0002R
Geographical coordinates: 35° 20'N, 25° 40'E
Altitude above sea level: 150 m
In operation since: March 1994
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Web page for the station: <http://atlas.chemistry.uoc.gr/finokalia>

Web page for the laboratory: <http://ecpl.chemistry.uoc.gr/>

The sampling station is situated at Finokalia (35° 20'N, 25° 40'E) in the northern coast of Crete. The nearest largest urban centre is Heraklion with 150 000 inhabitants located 70 km west of Finokalia (Fig.1). The station is located at the top of a hilly elevation (150 m) facing the sea within a sector 270° to 90°. The nearest village with 10 inhabitants is at a distance of 3 km to the south of the station. No human activities can be found at a distance shorter than 15km within the above mentioned sector.

Accommodation for guest scientists can be arranged either to the city of Neapoli, 19 Km southwest of Finokalia, or to Heraklion. ECPL owns a van for the needs of the station. For any technical assistance required, the facilities and technical personnel of the Department of Chemistry are available. Access to the station is free and it is possible on the basis of collaborative action between ECPL and the interested groups.

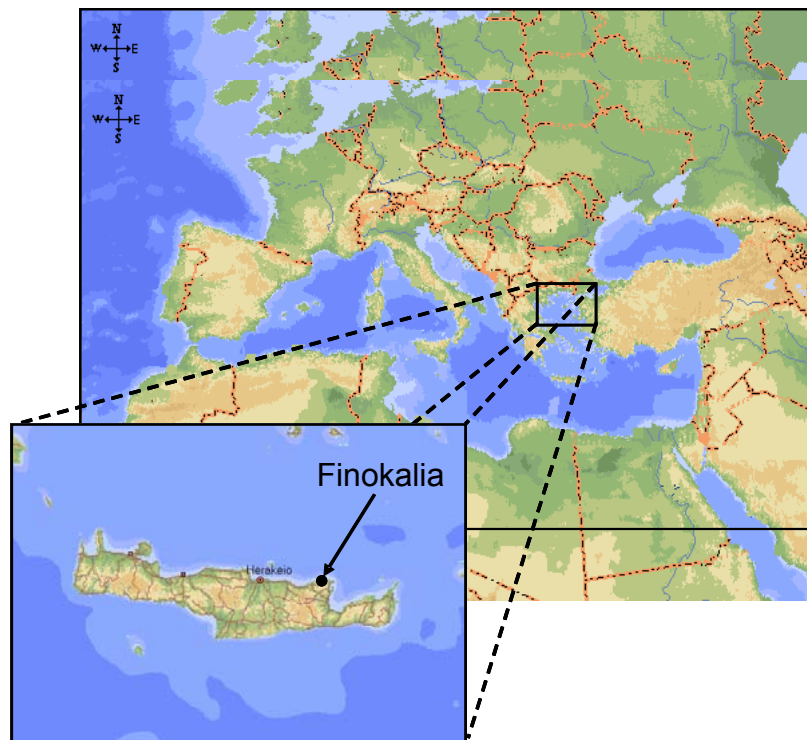


Figure 1

Meteorology of the area:

The figures below present a quick outlook of the meteorological situation encountered in the East Mediterranean. The area is characterized by the existence of two well-distinguished seasons equally distributed through out the year: The dry season (from April to September) and the wet season (from October to April). Based on a classification of 5-days backward trajectories performed for 8-year period (1997 - 2003) the dry season is mainly characterized (up to 90%) by winds of N/NW direction (Central and Eastern Europe and Balkans) and high speed. During the wet season the prevalence of the N/NW sector is less pronounced while important transport from Sahara (S/SW winds; occurrence up to 20%) takes place. Details on the meteorological conditions encountered at Finokalia are given by Mihalopoulos et al., *Tellus*, 49B, 314-326, (1997) and Kouvarakis et al., *J. Geophys. Res.*, 105, 4399-4407, (2000).

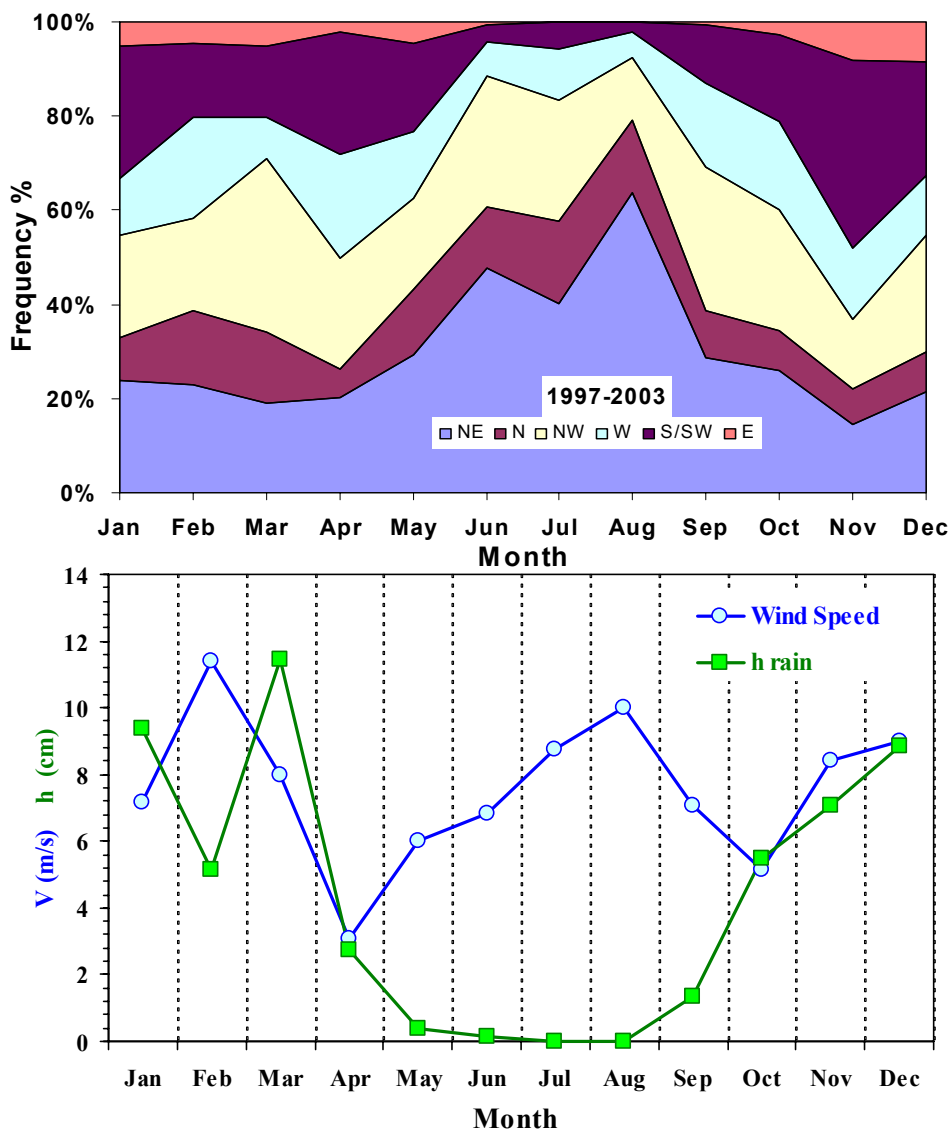


Figure 2

Field campaigns at the site.

There is normally one intensive field campaign on average each year (especially during the dry period) at Finokalia. MEDUSE, ADIOS, MINOS, GLOBALSOC, EL-CID are some examples.

International Collaboration.

Finokalia station is a unique location in the E. Mediterranean. A number of experiments are running in Finokalia either in continuous or sporadic basis in the frame of collaborations with several European Institutes, like:

- PAN, and free radicals measurements (HO_x and NO₃; in collaboration with MPI, Mainz),
- NMHCs measurements (continuous in collaboration with LSCE France and flask measurements in collaboration with MPI, Mainz),
- Rn and Th activities (in collaboration with LSE, France),
- Flask sampling network in collaboration with LSCE, France,
- Aerosol chemical composition measurements (in collaboration with LSCE France and FMI, Finland)
- Aerosol physical characterisation (in collaboration with IFT, Germany)

Specific issues on which collaboration is sought

Collaboration is particularly sought on issues relating to oxidation capacity of the atmosphere, aerosol formation and physicochemical properties; the radiative properties of aerosols; and on effects of aerosols

on both the direct effect and indirect effect of aerosols on climate; transport of toxic pollutants and particularly POPs.

List of measurements performed at Finokalia.

Type	Components	Start	End	Frequency	Technique	Units measurement
Meteorology	W. Dir	09 - 1996	present	5 min	meteorological station	°
	W. Speed	09 - 1996	present	5 min	meteorological station	m/sec
	Air Temp	09 - 1996	present	5 min	meteorological station	°C
	W. Press	09 - 1996	11 - 1999	5 min	meteorological station	hPa
	Solar radiation	07 - 2001	present	5 min	Pyrheliometer	W
Trace gases	JO ¹ D	07 - 2001	present	5 min	Spectroradiometer	s ⁻¹
	JNO ₂	07 - 2001	present	5 min	Spectroradiometer	s ⁻¹
	O ₃	07 - 1998	present	5 min	Dasibi 1008 AH / Thermo electron 49C	ppb _v
	NO/NO _x	09 - 1998	present	5 min	Thermo electron 42C	ppt _v
	CO	09 - 1998	present	5 min	Thermo electron 48C	ppb _v
	SO ₂	11 - 1996	present	Episodically mainly during dry period	denuders / filters GFF/ Nebulization chamber	nmol/m ³
	NH ₃	11 - 1996	present	Episodically mainly during dry period	denuders / filters GFF Nebulization chamber	nmol/m ³
	HNO ₃	11 - 1996	present	Episodically mainly during dry period	denuders / filters GFF Nebulization chamber	nmol/m ³
Aerosols	HCOOH CH ₃ COOH	11 - 1996	present	Episodically mainly during dry period	denuders / Nebulization chamber	nmol/m ³
	DMS (dimethylsulfide)	05 - 1997	09 - 1999	2 - 4 days and episodically	GC / FPD	ppt _v
	PM ₁₀	08 - 2004	present	5 min	b-attenuation	µgr/m ³
	Rn / Th*	07 - 2000	present	2 hours	a-counter	pC/m ³
	Black Carbon*	10 - 1996	present	5 min	Magee Aethalometer and PSAP	µgr/m ³
	Nephelometer	07 - 2001	present	5 min	Radiance Research M903	m ⁻¹
	Aerosol chemical composition including (ionic composition, metals and OC/BC)*	10 - 1999	present	Few hours- day	Filters Zefluor PTFE (low volume), 2 and 11-stage impactors	nmol/m ³
Wet deposition	Chemical composition of wet deposition	10 - 1996	present	per event		h (mm)

* = Collaborative action

If data is required by an external investigator to directly support a research task, collaboration, and if appropriate, authorship on scientific publications, should be offered to the research team responsible for measurements.

An amount of Finokalia hourly data being placed on the CREATE (EU Project) Database housed at NILU (<http://www.nilu.no/projects/ccc/create>)

Station photos:

