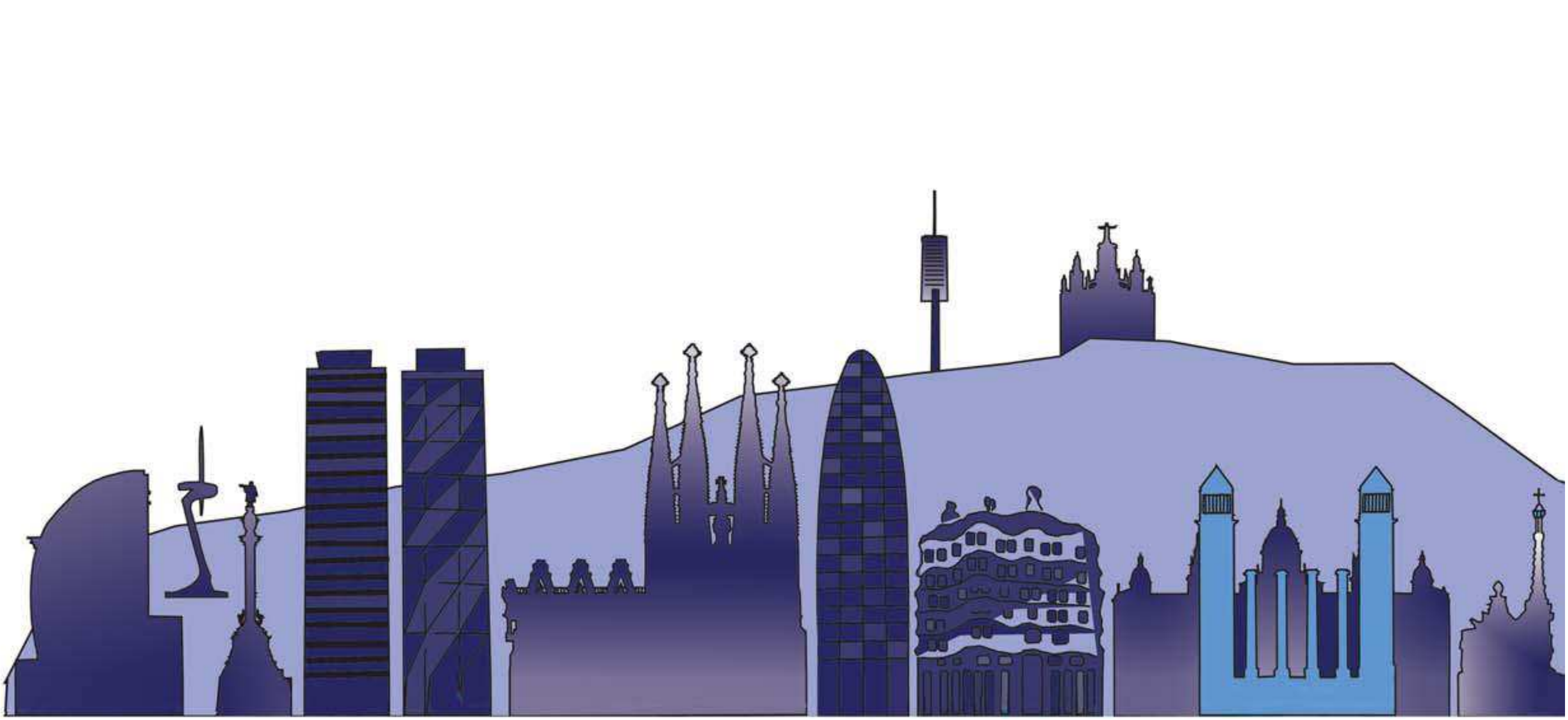
MedPalyno 2017

Mediterranean Palynology
APLE-GPPSBI-APLF Symposium
Barcelona, 4-6 September 2017

Abstracts Book



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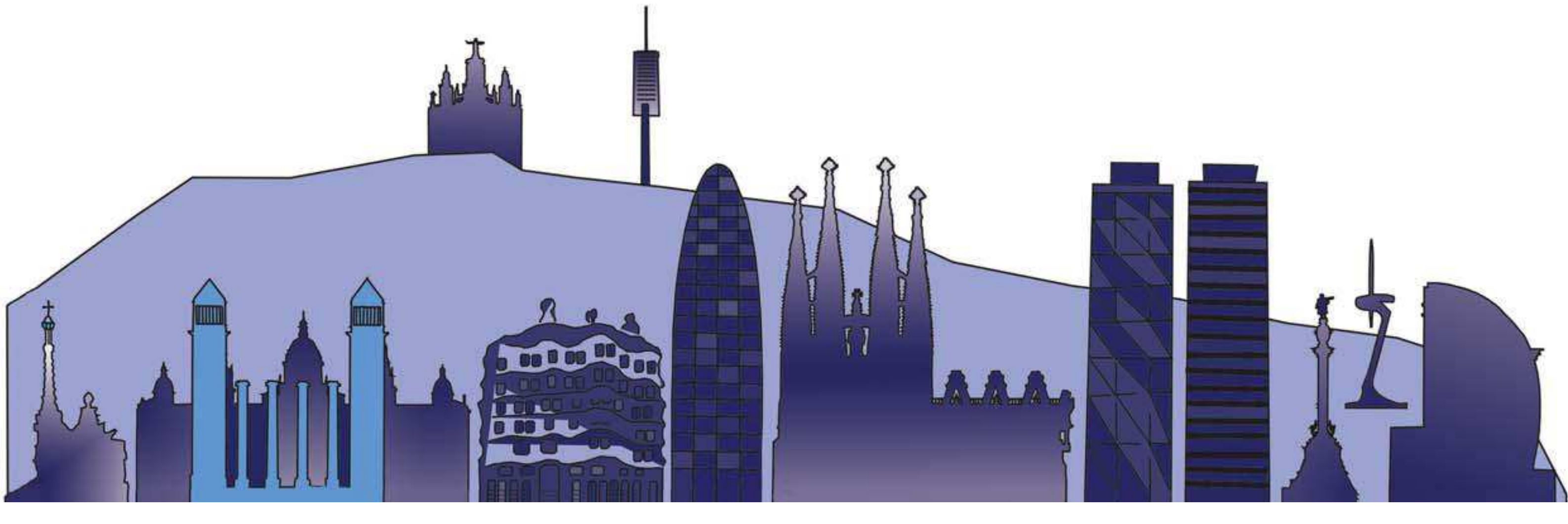

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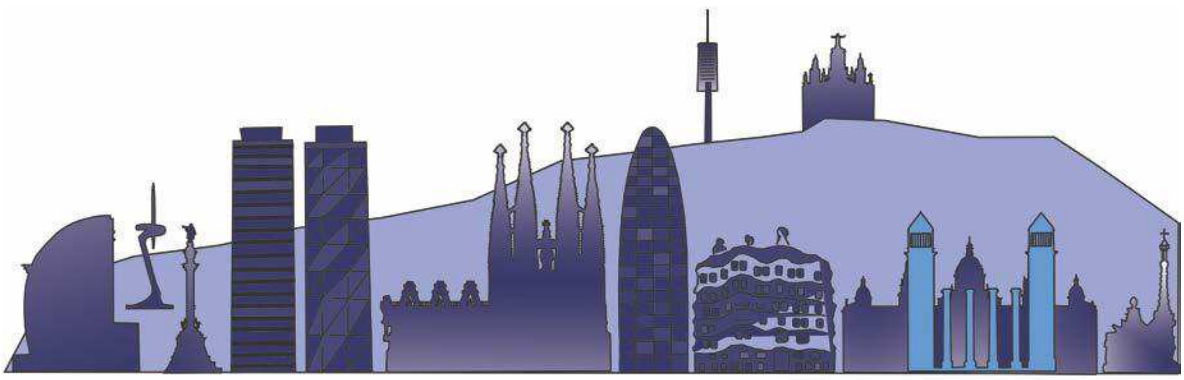
Edited by Concepción De Linares and Jordina Belmonte



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Gruppo di Palinologia e Paleobotanica della Società Botanica Italiana (GPPSBI)
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Pollen trends in different towns of Italy

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Recent studies show how global climate changes influence the phenology of plants (Albertine *et al*. 2014, Ziello *et al*. 2012). Using the data from 8 Italian aerobiological monitoring stations, over the period 1985-2010, we examine whether they show any trend and if this is related with temperature.

Pollen data (pollen grains/m^3) were obtained from the stations L'Aquila-AQ, Bologna-BO, Messina-ME, Napoli-NA, Roma-RM, Sassari-SS, San Michele a/A-TN, Torino-TO and were analysed using standard methods. We considered 8 taxa (*Carpinus/Ostrya, Castanea, Corylus,* Cupressaceae/Taxaceae*, Olea,* Poaceae*, Quercus,* Urticaceae) and explored pollen trends on the basis of phenological (pollen season start date and length) and production indicators (API - annual pollen index) (Jäger *et al.* 1996). For the winter taxa (Cupressaceae/Taxaceae and *Corylus*), we examined the period from 1st November to 31th October of the following year. For the meteorological data, we used the monthly average temperature (Tmed °C). The normality of distribution of all data was examined using the Shapiro-Wilk test. To evaluate the significance of trends, the linear regression analysis Reduced Major Axis (RMA) was applied. Moreover, to determine the degree of correlation between two variables, the Spearman correlation test was used (PAST and 21.0 IBM-SPSS Statistics Software).

Significance (p=0,05) of the linear regression is found for all indicators: (i) for the start day of the pollen season (early for *Carpinus/Ostrya* in AQ, *Castanea* in NA, *Corylus* in ME and RM, *Olea* in BO, Poaceae in RM, *Quercus* in NA and TO; late for *Carpinus/Ostrya* in RM, *Corylus* in AQ, NA, SS and TO, *Olea* in RM and SS, *Quercus* in RM), (ii) for the season length (increasing for *Corylus* in RM, Cupressaceae/Taxaceae in AQ and SS, Poaceae in BO and TN, *Quercus* in TO, Urticaceae in BO; decreasing for *Castanea* in ME and SS, *Quercus* in SS), and (iii) for API (rising for Cupressaceae/Taxaceae in SS and TN, Poaceae in SS; decreasing for *Castanea* in SS, *Corylus* in TO, Cupressaceae/Taxaceae in TO, *Olea* in AQ, Poaceae in ME, NA, RM, TN, and TO, Urticaceae in NA). The linear regression for temperature is significant (p=0,05) only in Napoli (decreasing).The correlation between pollen indicators and temperature is significant for the start day of the pollen season (for *Castanea* in BO and ME, *Corylus* in BO, Cupressaceae/Taxaceae in TN) and for API (for *Corylus* in SS, Poaceae in NA).

In general, significant relationships for the API show decreasing trends, while the starting day of the pollen season occurs earlier or later without presenting significant correlations with temperature: there are no significant increases in temperature or in the pollen load. The API decline of arboreal taxa may be attributed to the different distribution of precipitation.

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