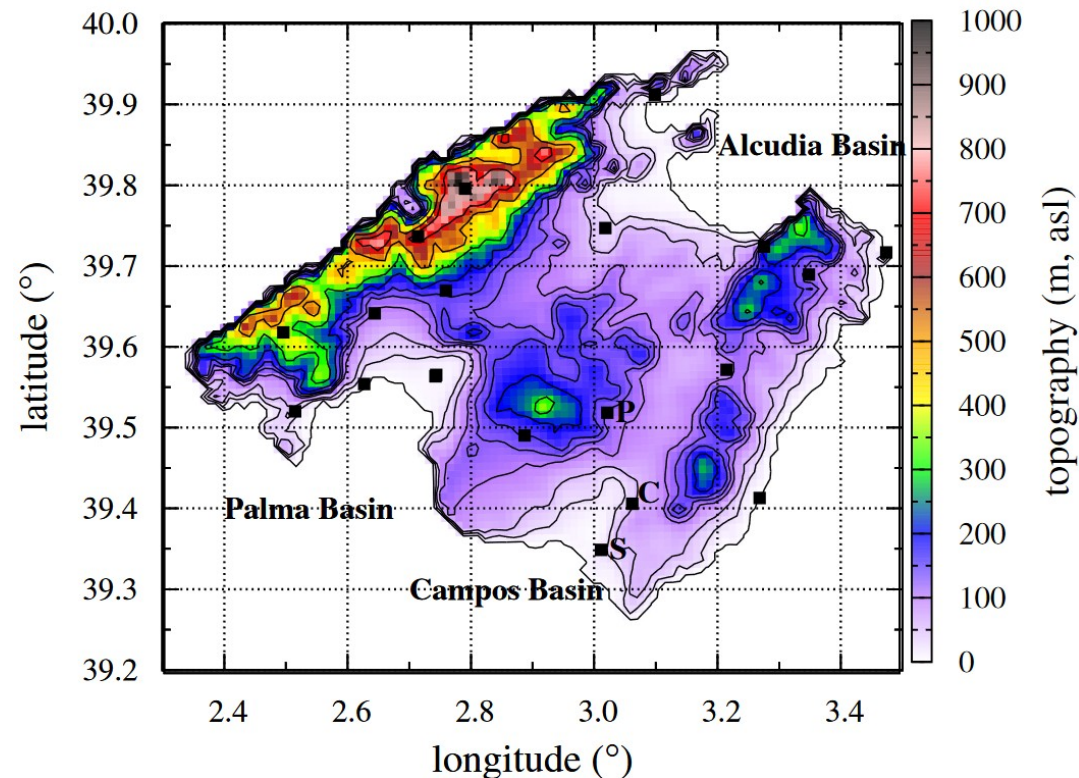
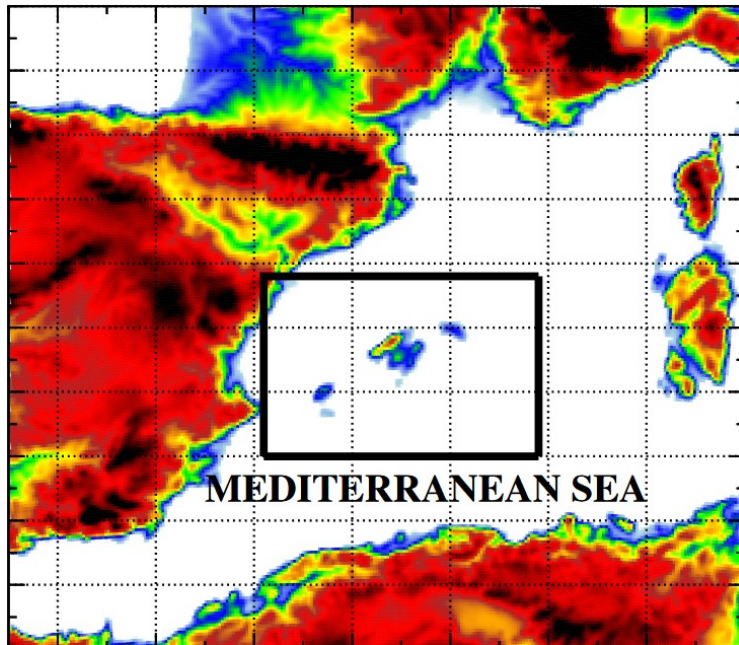


# Statistical characterization of the physical mechanisms under Sea Breeze conditions in a complex terrain island

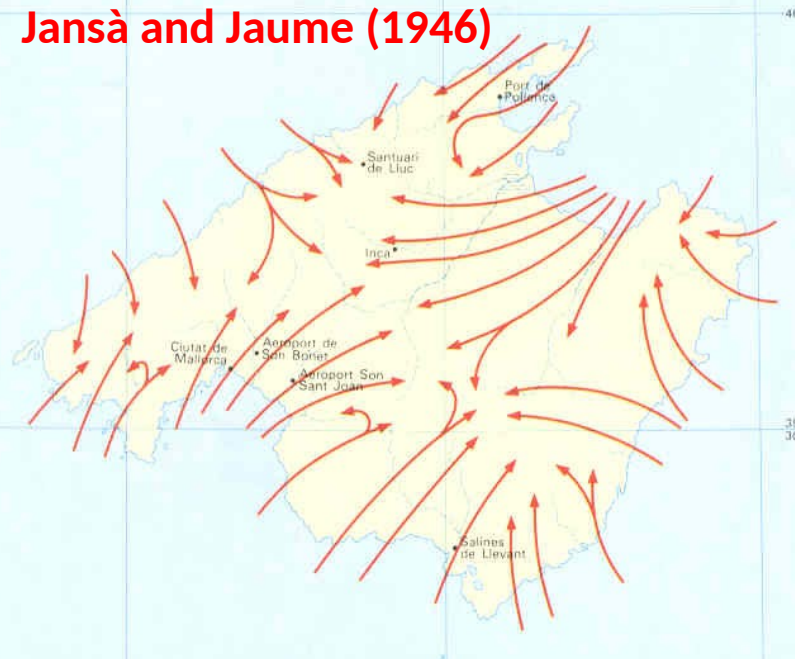


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## Jansà and Jaume (1946)



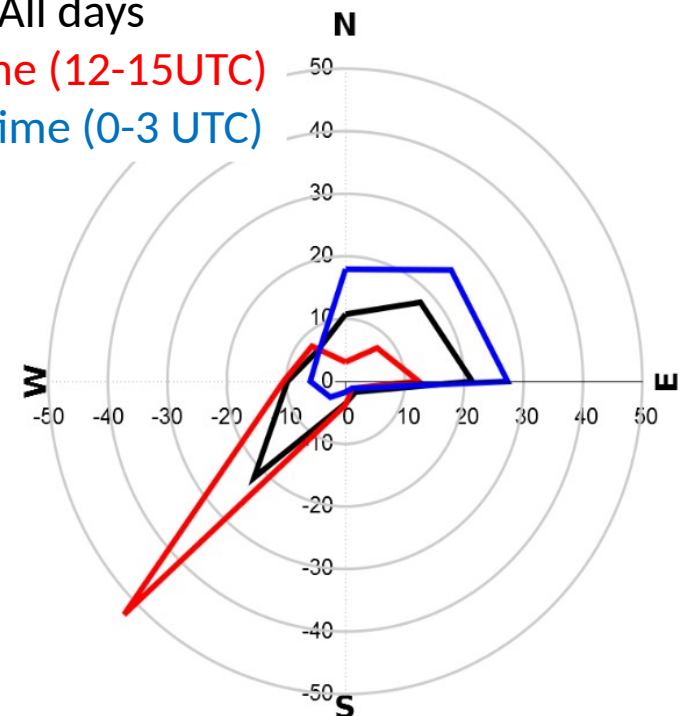
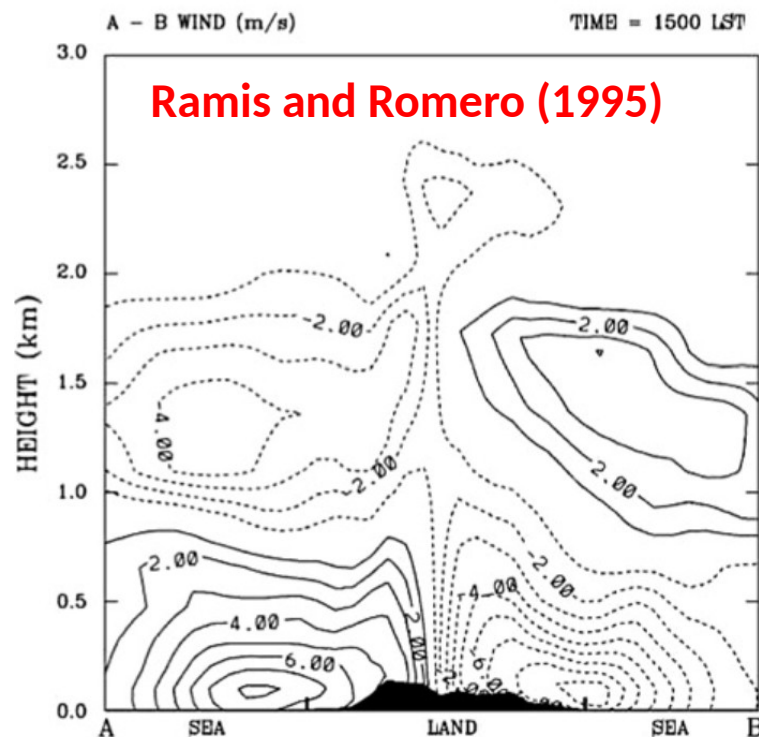
- ✓ SB is a common feature in Mallorca (warm months)
- ✓ SB front interacts with locally-generated winds

## Airport (2016)

All days

Daytime (12-15UTC)

Nighttime (0-3 UTC)

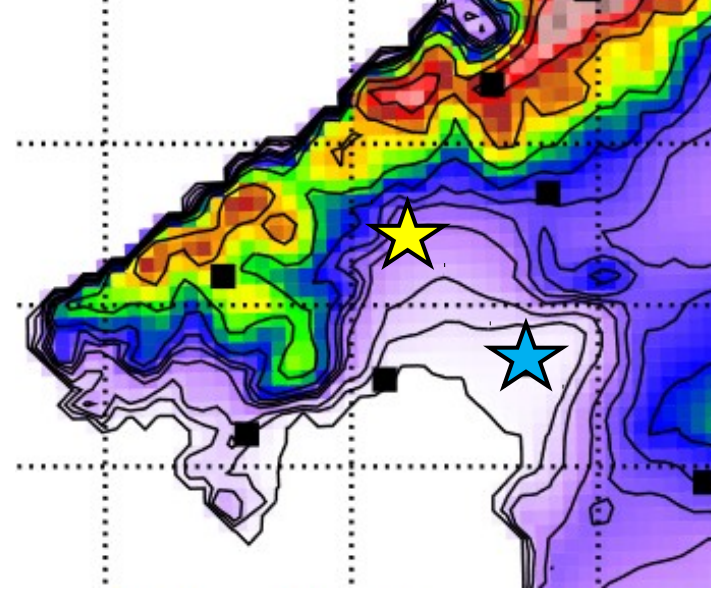


# SELECTION OF SB EVENTS

(2009-2017)

using data from AWS, inspired in Borne et al (1998)

**Grau et al. (2020)**



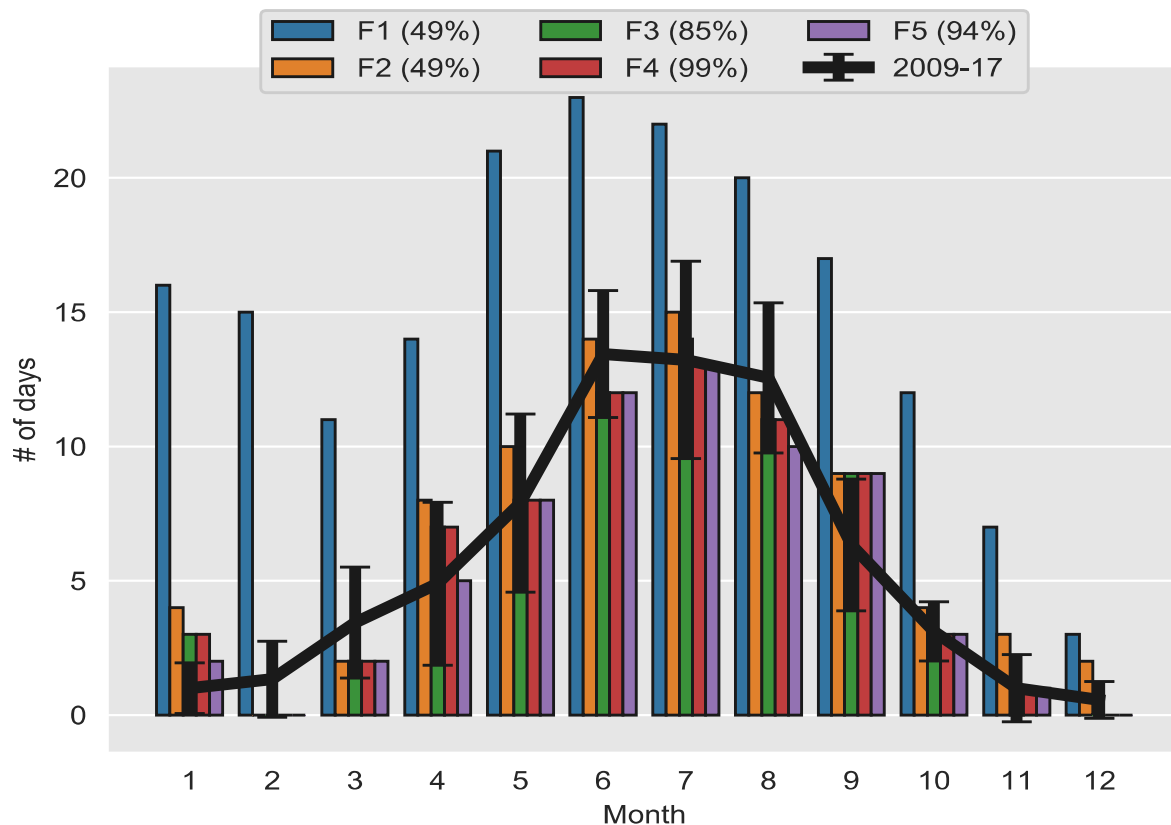
**F1: Wind direction (from the sea, SE)**

**F2: Large-scale wind**

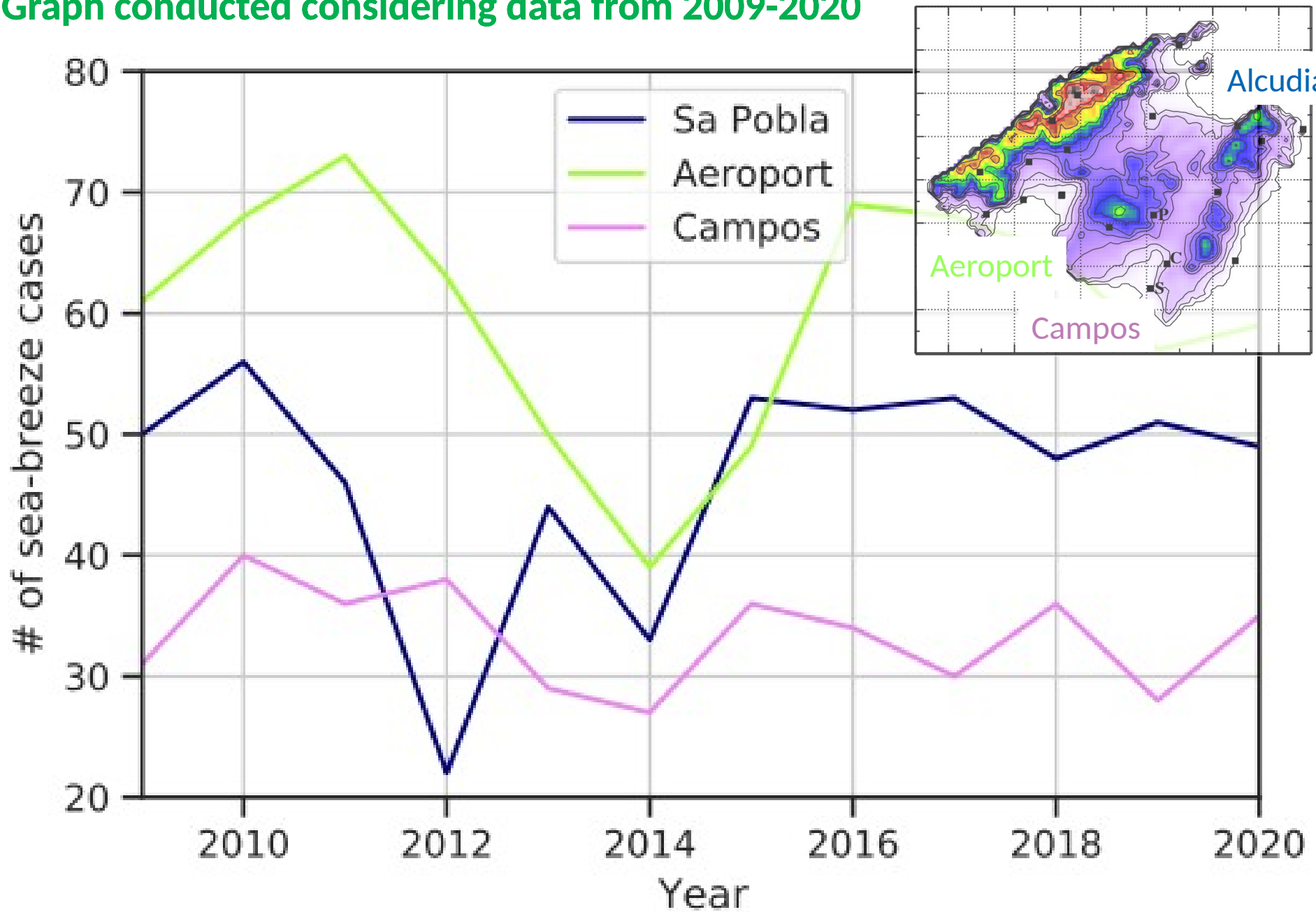
**F3: Wind reversal (during the morning)**

**F4: Weak wind speed**

**F5: No precipitation**

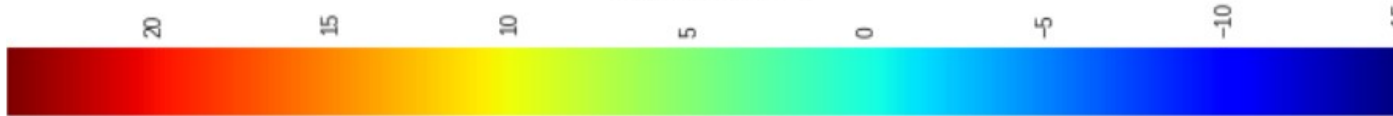


Graph conducted considering data from 2009-2020



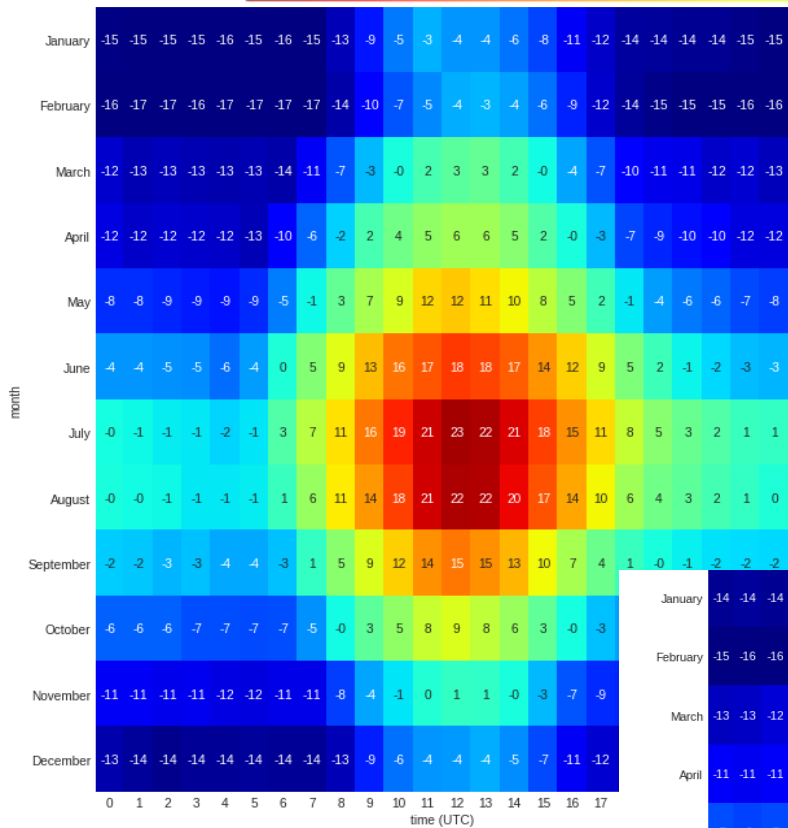
Anomalies are due to climatological factors or holes in data series



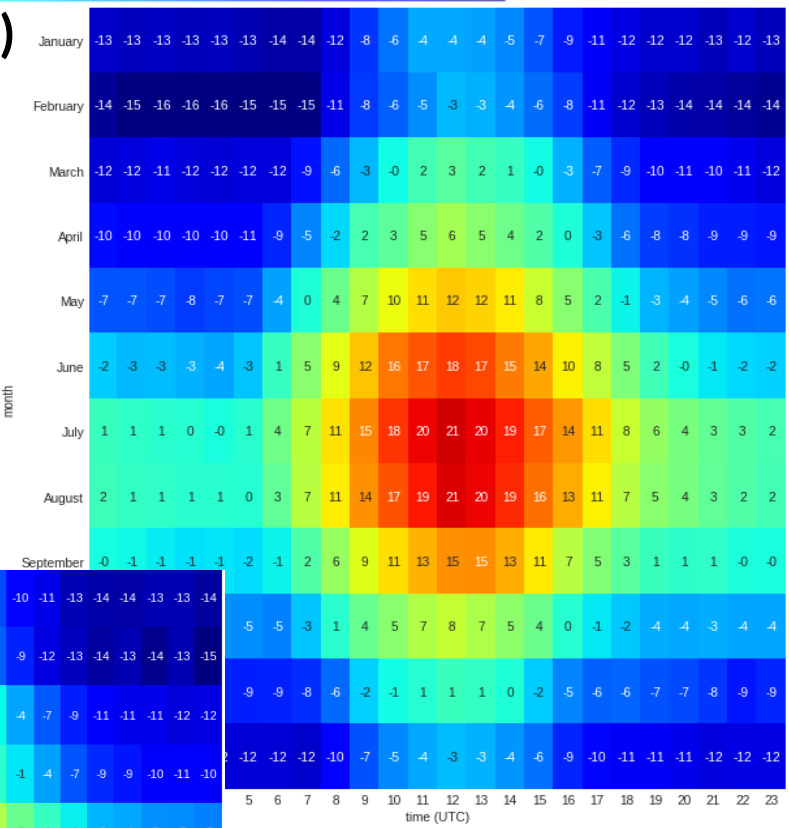
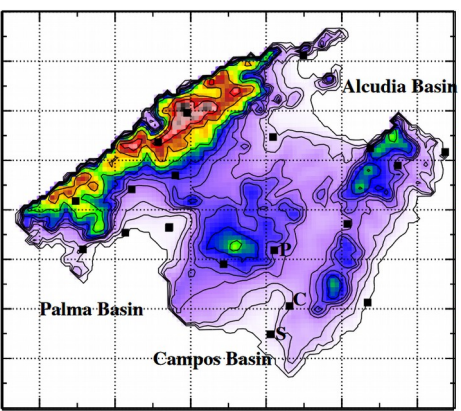


$\Delta T$  (2009-19)

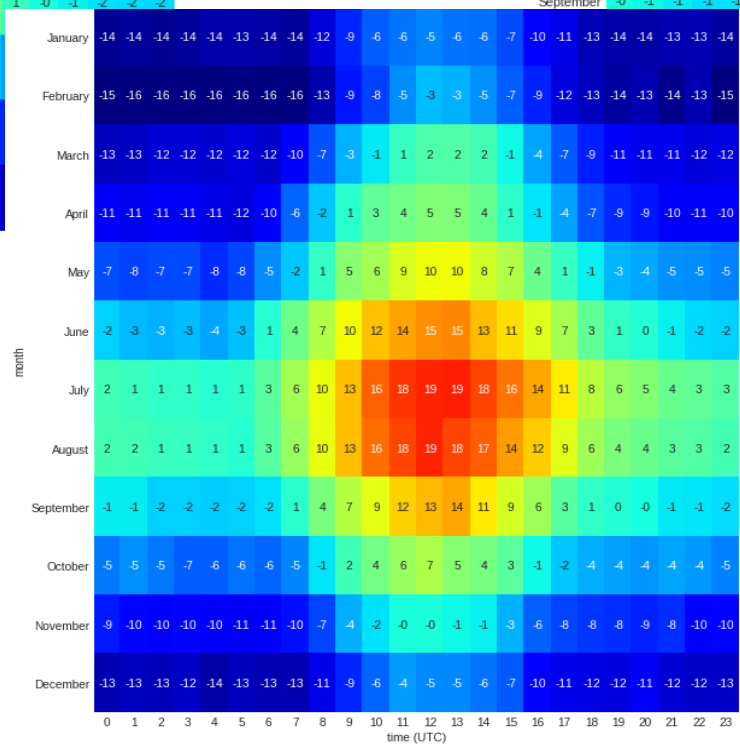
$\Delta T$  is larger in Alcudia because LST is warmer than the others



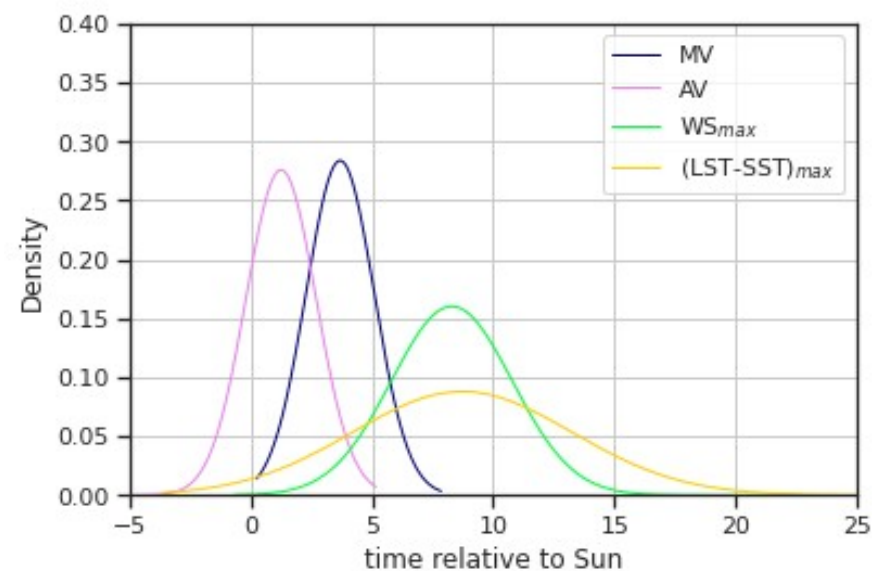
Alcudia Basin



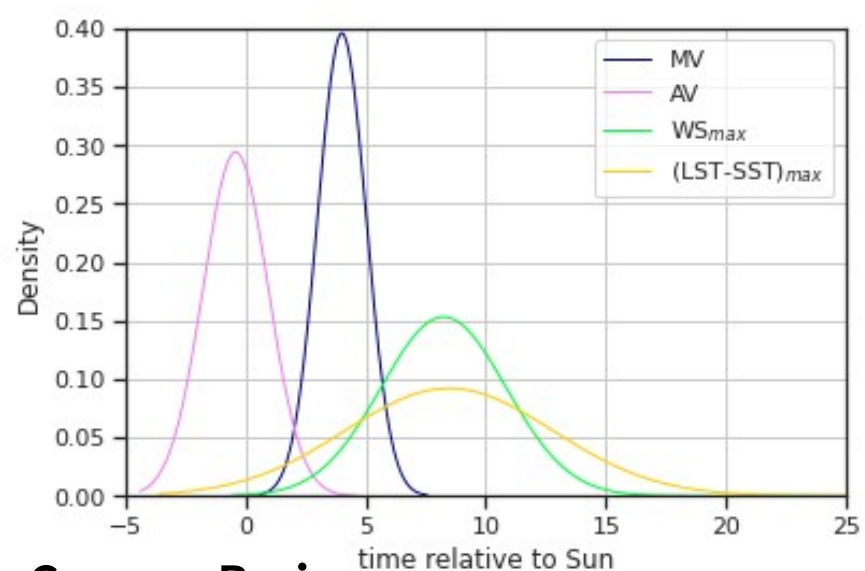
Campos Basin



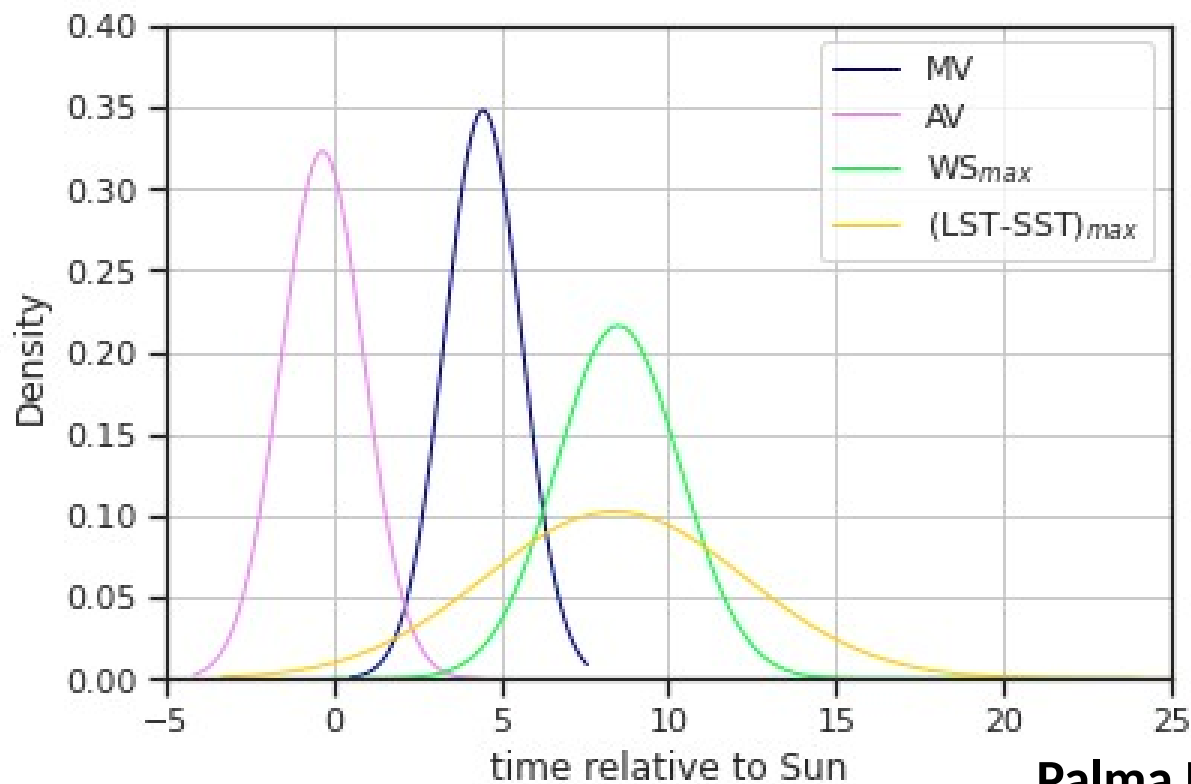
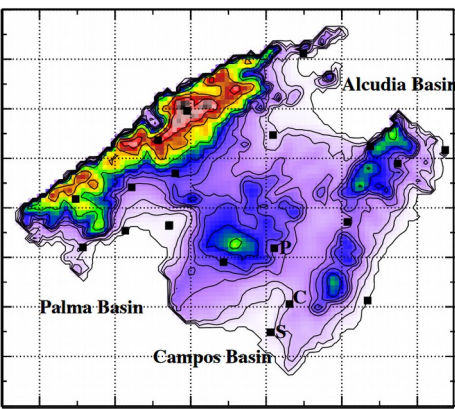
Palma Basin



**Alcudia Basin**



**Campos Basin**



**Palma Basin**

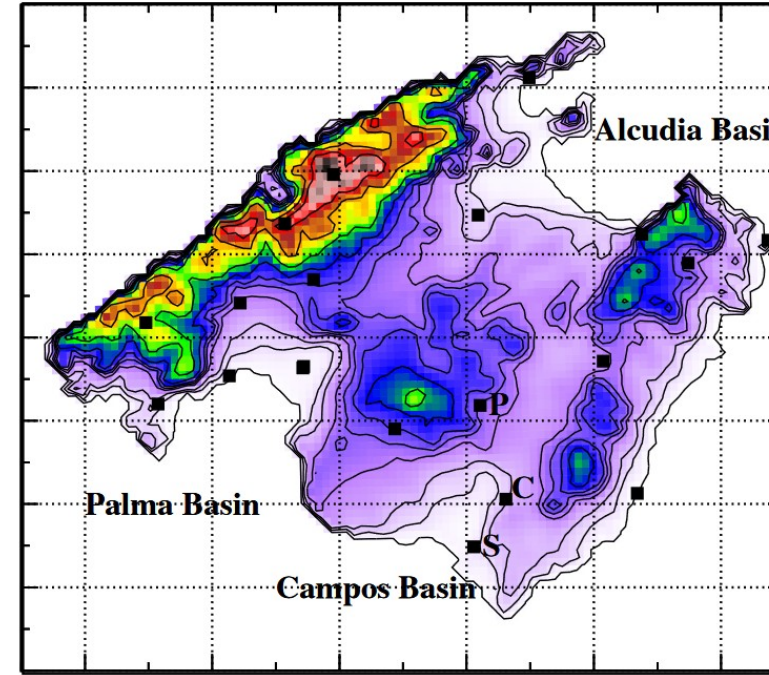
# SUMMARY

SB in Mallorca conditioned by the shape/orientation of the basin

✓ # SB days in Palma & Campos are similar (both **W** oriented)

✓ SB in the Campos basin is **influenced by the SB generated at the E coast**

✓ SB in Alcudia is less frequent (BUT  $\Delta T$  is warmer than the others -> **SB opposite to LS winds!**)



	Slope winds	LS winds (protected)	Horizontal $\Delta T$
Palma (semicircular)	=	=	
Campos (triangular)	=	= (less than Palma)	
Alcudia (large & open)	=	= (SB is opposite to W)	= Largest

# Acknowledgements

This work has been partially sponsored by the *Comunitat Autònoma de les Illes Balears* through the *Direcció General de Política Universitària i Recerca* with funds from the *Tourist Stay Tax Law ITS 2017-006 (PRD2018/67)*



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I RECERCA

Observations downloaded from

