



## **Foehn at the lowest place on earth**

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Foehn occurs at the Dead Sea. Measurements from weather stations at the valley floor and on the slope show that the prime season for foehn is summer and the prime time late afternoon and evening (using the objective classification algorithm of Plavcan et al (2014)[1]). During summer synoptic scale forcing with cross-barrier winds is rare and thus the gravity-wave-driven concept cannot be used to explain the occurrence of foehn. The density-driven foehn concept [2], on the other hand, with denser air at crest level upstream than in the valley can explain the occurrence of foehn. It also explains the differences in foehn frequency between the slope and valley bottom station.

### References:

[1] Plavcan, D., Mayr, G. J., & Zeileis, A. (2014). Automatic and probabilistic foehn diagnosis with a statistical mixture model. *Journal of Applied Meteorology and Climatology*, 53(3), 652-659.

[2] Mayr, G. J., & Armi, L. (2010). The influence of downstream diurnal heating on the descent of flow across the Sierras. *Journal of Applied Meteorology and Climatology*, 49(9), 1906-1912.