

Climate characterization of Vigo and comparison against other yachting locations



March 22nd , 2017

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1. Company experience

“4gotas atmosfera y océano S.L.” is a technology-based star-up that was created with the goal of providing oceanographic and meteorological services through a cool, different, and creative approach, maintaining the rigor and professionalism of its four founding partners.

4gotas founding partners have an extensive experience in ocean-meteorological modeling. He has a 10 years experience in MeteoGalicia, managing Numerical Modelling and Research Department. His career involves performing, coordination and management of multiple national and international projects focused not only in research, but also linked with the private sector and resolve specific problems. Among these, one could highlight the following projects that the 4gotas team was actively involved, ESEOO (Establecimiento de un Sistema Español de Oceanografía Operacional), EROCIPS and then ARCOPOL (Atlantic Regions’ COastal POLLution response), EASY and then EASYco (European Atlantic forecasting SYstem), ECOOP (European COastal sea OPERational observing and forecasting system), EUROGOOS (European Ocean Observing System), MEDEX (MEDiterranean EXperiment on ciclones that produce high impact weather in the Mediterranean), DRIFTER (HNS, oil and inert pollution: Trajectory modelling and monitoring) and RAIA and then RAIACO (Observatorio Oceánico da Marxe Ibérica).

That is why we have accumulated a wealth of experience in ocean and meteorological modelling after the installation and executing on multiple platforms meteorological models as ARPS, MM5 or WRF and hydrodynamic models such as ROMS, MOHID or further wave models such as SWAN or the WW3. This is demonstrated by their CVs and scientific papers, some of which are detailed below.

4gotas manages www.4gotas.com, a web with ocean-meteorological forecast and also with a scientific blog and videoblog.

The company, located in Santiago de Compostela (A Coruña), is a technology-based employment initiative (IEBT), which accredited its capacity of Research, Development and Innovation.

4gotas participated in numerous R & D projects at regional, national and international level:

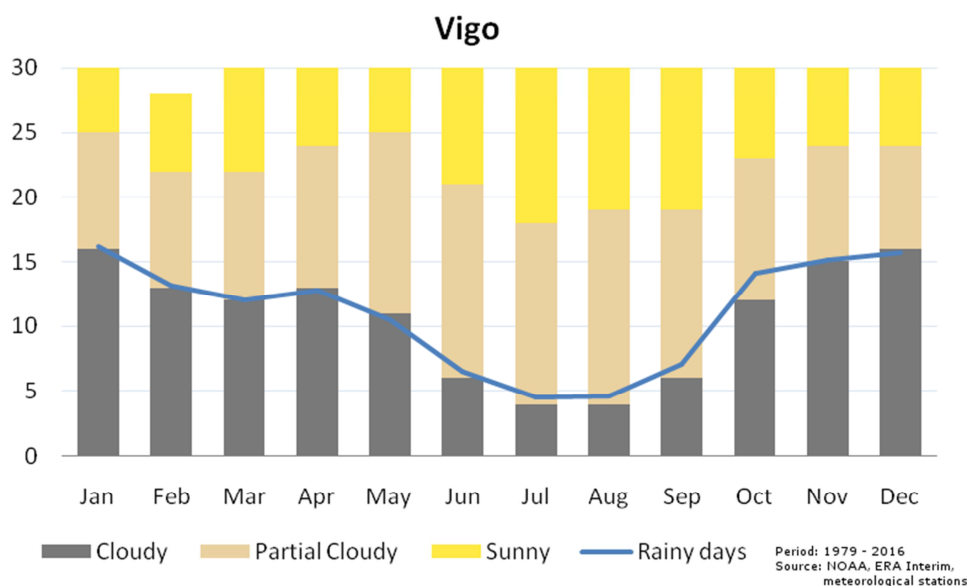
- LIFE+INDEMARES Project, within action A12: "Monitoring and evaluation of deliberate pollution by oil spills in the marine environment of the Natura 2000 network" in order to do an accidental oil spill atlas risk. The project result can be found in <http://visorwwf.cetmar.org/>
- "ARALFATUR" Project (Design and development of technological solutions for the fleet of the future). The study was carried out to characterize the climatic conditions (wind and wave) and hydrodynamics (currents) in the most common operating areas of the ACEMIX fleet (Association of Community Companies and Mixed Fishing Societies)
- European Consortium EMODnet (European Marine Observation and Data Network). Implementing a standard for sharing high-resolution radar data that measure currents and waves on the European coast. The results of this project can be viewed in <http://www.emodnet-physics.eu/Map/>
- ARCOPOL Platform Project characterizing the danger to which the National Marine National Park of the Atlantic Islands is subjected by an accidental oil spill.
- At the moment it works in the European project MARINER, realizing an analysis of the danger to that the Galician coast is subject by an accidental discharge of chemical products
- Within regional announcement "Conecta Pemes 2016", promoted by the Xunta de Galicia, we participate in the CATCH (Clean Air Technology CHange) project, carrying out specific meteorological forecasts and developing dispersion models of pollutants with the objective of adapting emissions, domestic consumption, traffic routes, etc. to correct those excessive levels of pollution.

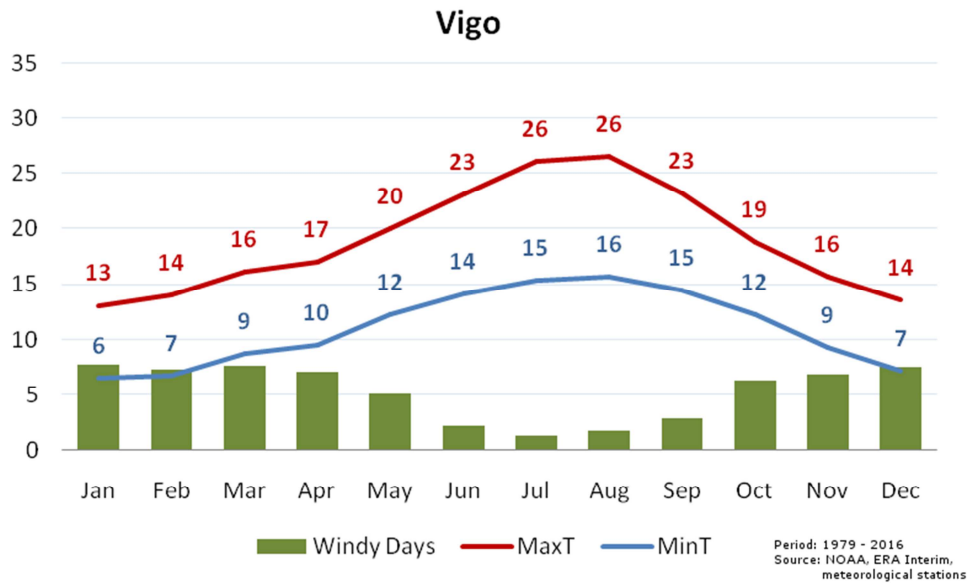
Besides, 4gotas maintains agreements with various private and public entities for the supply of ocean - meteorological information. Wine cellars nationwide, Channel Extremadura and other media, information screens in various cities or several Galician harbors receive daily forecast made by 4gotas.

2. Vigo Climate

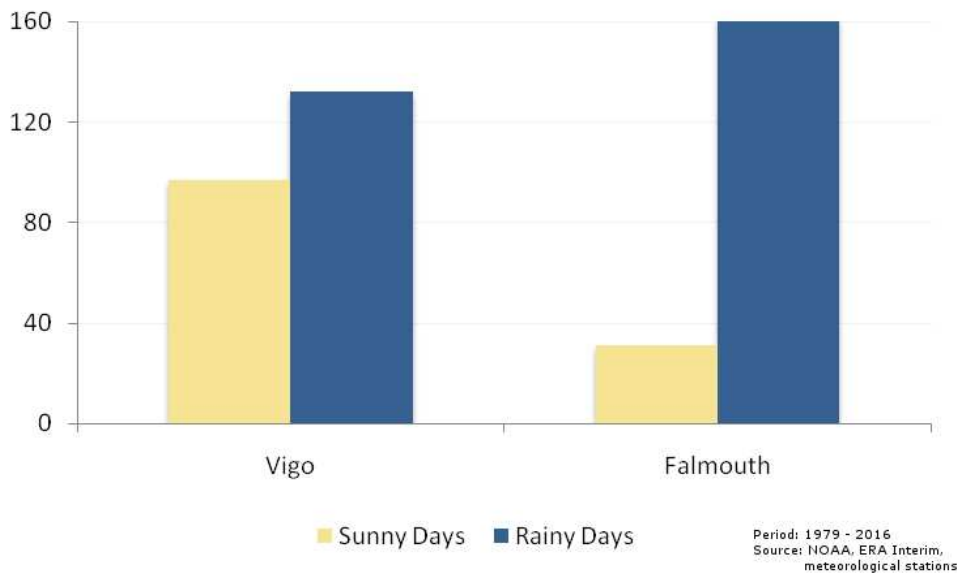
Vigo has climate conditions strongly influenced by its proximity to the Atlantic Ocean, but a privileged location at the bottom of the Ría Bay protects the city from the south-southwesterly winds usually present in the final stages of autumn and during the wintertime. On the other hand, winds coming from the North are highly prevailing in the summer months and even in the 55% of the days on a typical year. Those northerly winds arrive to the city after having gone through a few mountain ranges, resulting in a fair amount of sunny and calm days.

In this report, an extensive 38 year long period, spanning from 1979 to 2016, has been used to select data coming both from in situ observations and reanalysis recorded from several sources including NOAA (National Oceanic and Atmospheric Administration, US Department of Commerce) and ECMWF's ERA-Interim reanalysis. Analysing those sets of data we can conclude that Vigo has mild winters and mostly dry summers. Night-time temperatures in winter are not remarkably cold, with pleasant daytime temperature values reaching maxima around 15°C. Summer absence of precipitation is outstanding, while temperature records are gentle, around 15-20°C for the night-time values and 25-27°C during the day. In fact, apart from the winter season (December, January and February), in Vigo hardly rains.



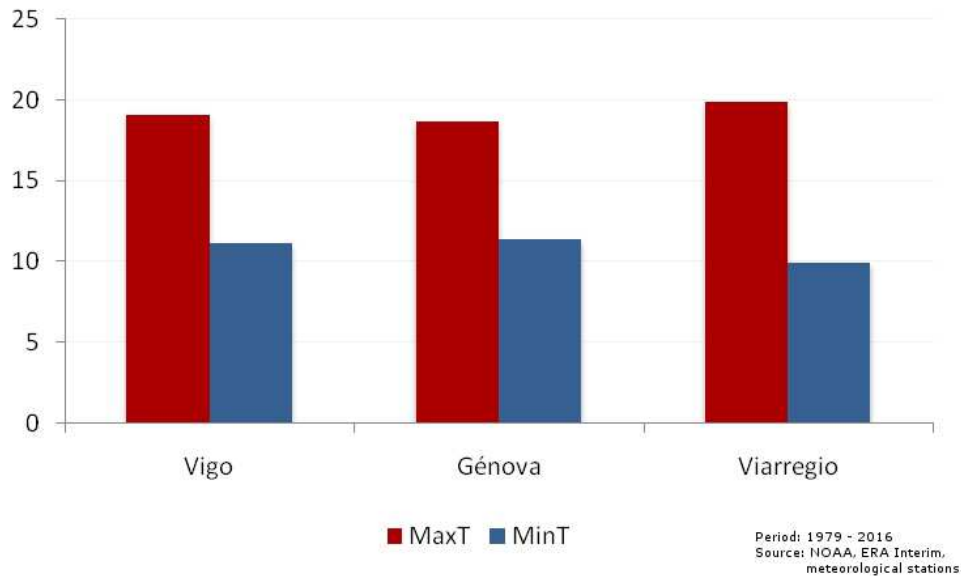


Climate in Vigo is one of its additional attractions as a city. Sunny and dry days are much more frequent than in Falmouth.



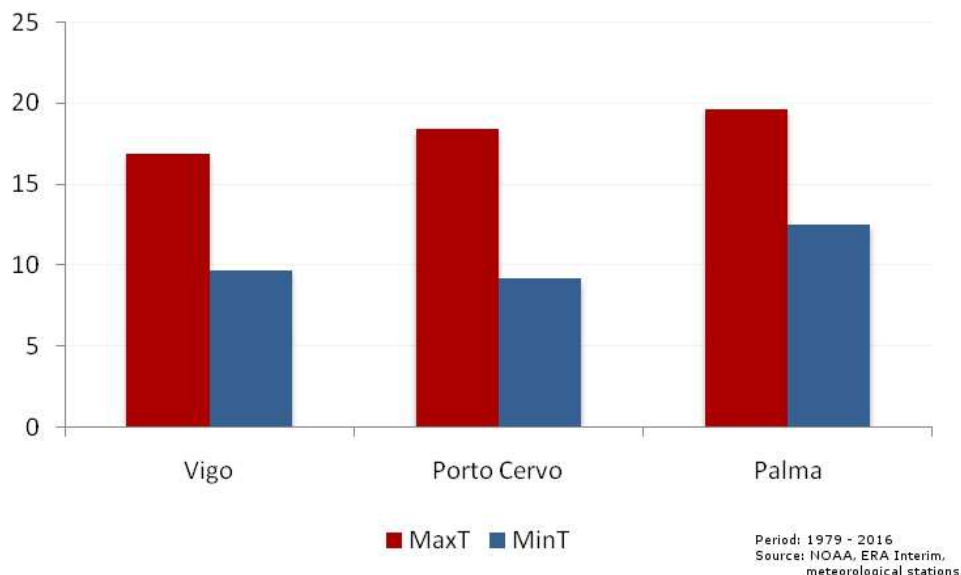
Driest and sunniest yachting city in the Atlantic

Both autumn and spring temperature values in the city are similar to those recorded in Genoa and Viareggio



Similar temperature records to the Italian Mediterranean coast

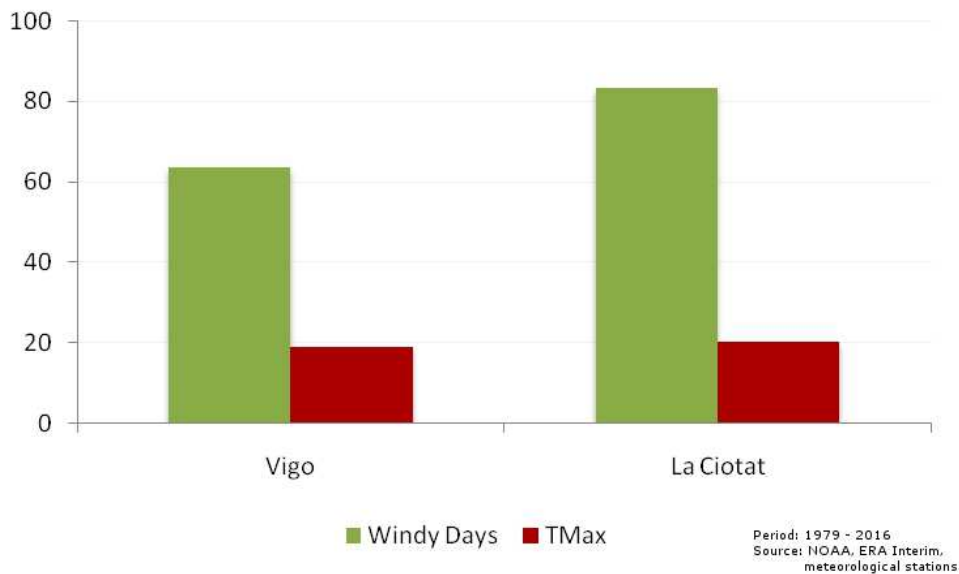
Temperatures in the Ría of Vigo, except during summer months, are similar to those recorded at Porto Cervo and barely 2°C biased in comparison to Palma. Summer typical values for the maxima round 25-27°C



Pleasant temperatures all over the year

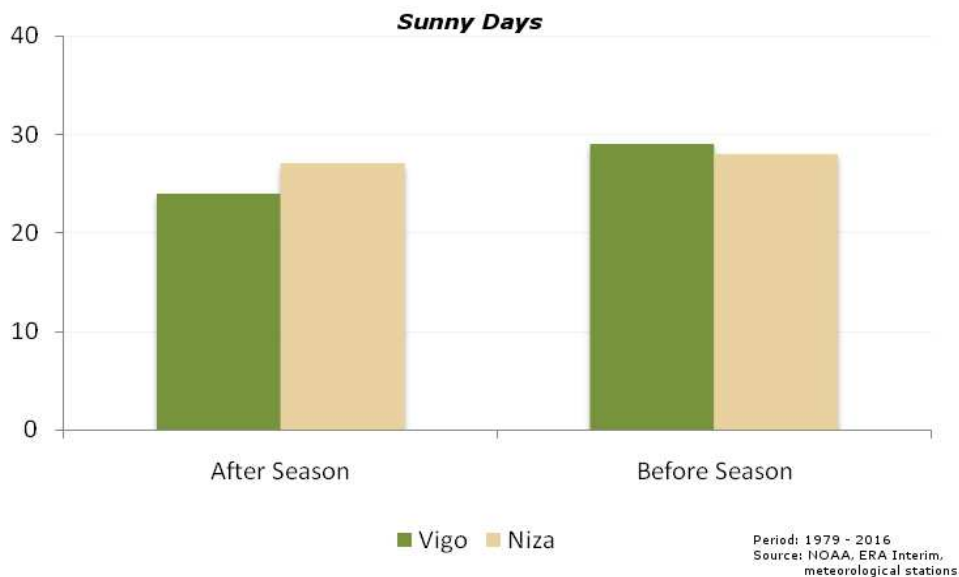
Vigo is a city sheltered by the surrounding elevations, so wind tend to be not so intense, giving place to a gentle thermal sensation throughout the year. The number of days with strong wind gusts (above 50 km/h) is far less than the

recorded at La Ciotat, giving Vigo a nicer thermal sensation compared to the French Riviera (Côte d'Azur).



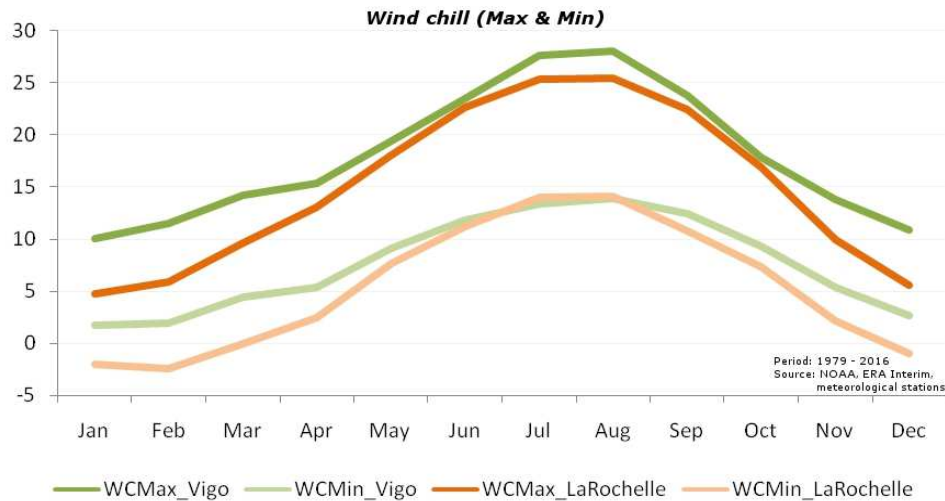
Thermal sensation similar to Côte d'Azur (France)

Both during autumn after-season and spring before-season, the number of clear sky days in Vigo and Nice are similar.



Sunny days figures similar to Nice

Vigo, in addition to being the sunniest Atlantic yachting location, is the spot with more pleasant temperatures at any time of the year.

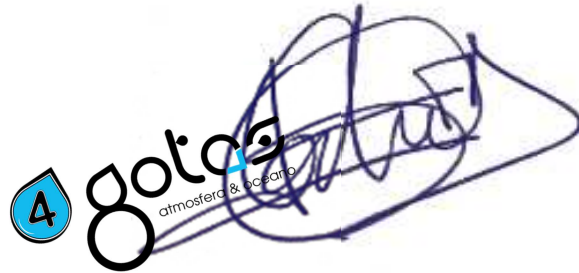


Yachting location with the milder temperatures in the Atlantic

For all these reasons, the climate in Vigo is one of the attractions of the city

3. DISCLAIMER

The signatories of this report affirm that, in accordance with the provisions of article 335.2 of Law 1 / 2,000 of Civil Procedure, they promise that in the preparation of this opinion and in their future actions in relation to it, they have acted and will act with the greatest possible objectivity, always adhering to the truth and taking into account both what may favor and what is likely to cause harm to either party.



Signed: José Carlos Fernández Balseiro

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Data supported by:

