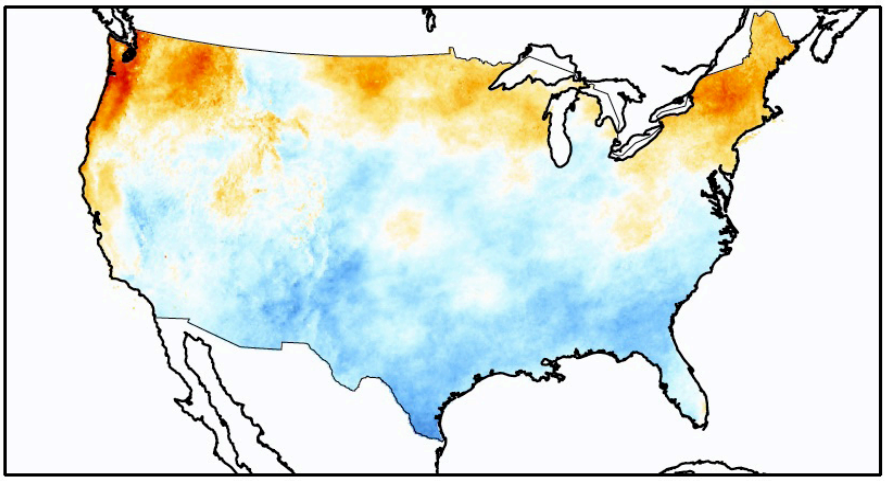
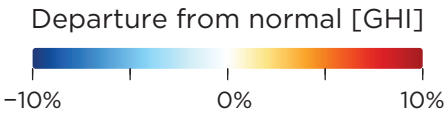
VAISALA

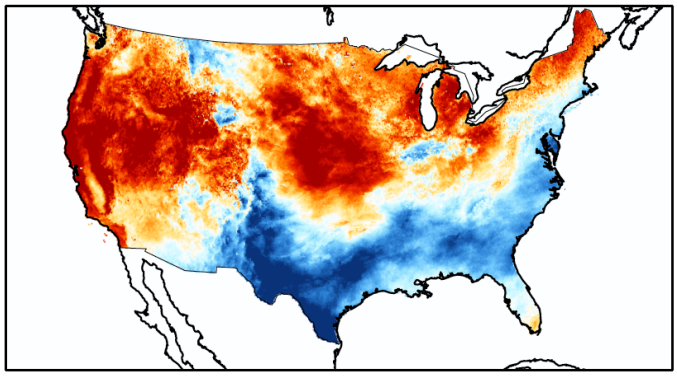
2015 | U.S. Solar Performance Maps



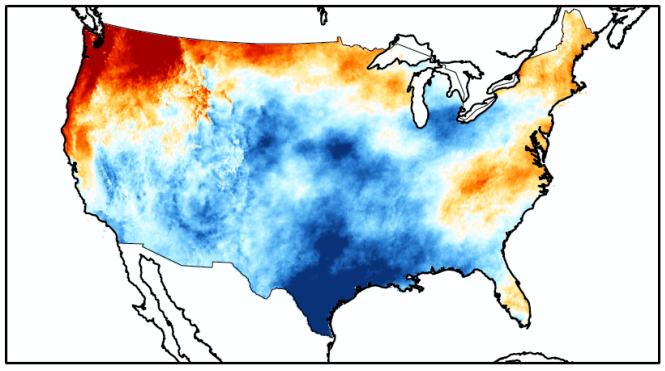
2015

The 2015 U.S. Solar Performance Maps show departure from average solar irradiance in GHI (or Global Horizontal Irradiance, the key variable for PV projects). Vaisala conducted the study by comparing 2015 data with long-term averaged values from its continually updated global solar dataset.





Q1



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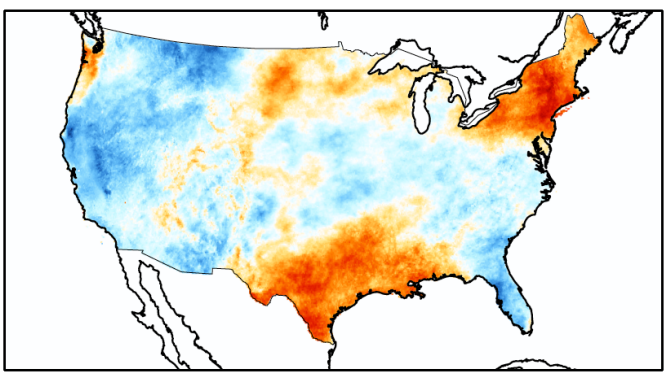
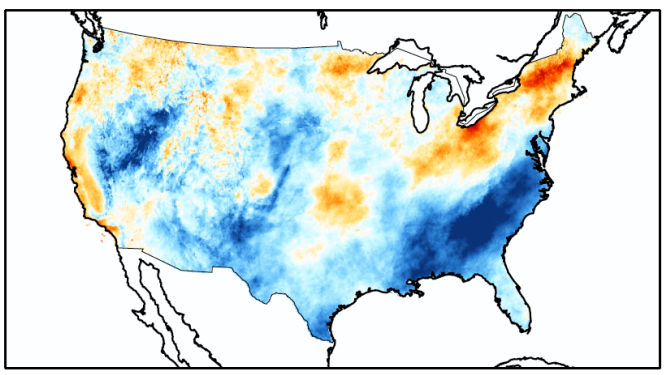


Q3



Q4

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2015 | U.S. Solar Performance Summary

Q1

Similar to the first quarter of 2014, higher than normal insolation in the western and central U.S. was associated with an exceptionally strong long wave ridge which dominated atmospheric circulation patterns for most of the quarter. This ridging pattern was characterized by clear skies leading to above average insolation in these regions. In the southern and southeastern regions of the U.S., higher than normal precipitation levels were the result of short wave disturbances in the upper-level flow pattern. As the quarter progressed, above normal precipitation levels affected most of the southern and Gulf Coast states. This pattern was a result of the close proximity of the North Atlantic High to the southeastern coast. The flanking low pressure area to the north of the North Atlantic High brought vigorous storm activity to the Southeast and along the coast as far north as the mid-Atlantic states, producing above normal precipitation in this region and negative solar irradiance anomalies.

Q2

Strong negative anomalies over the Central and Southern Plains, and the Gulf Coast states, were a direct result of the numerous storm systems traveling though the jet-stream. The southerly flow associated with these low-pressure systems fueled the storms with moisture from the Gulf of Mexico. Many states received 20 inches or more of rain, producing severe flooding in Texas and Oklahoma. Texas had the wettest May on record. With the storm tracks located in the southern U.S., below-normal precipitation levels were experienced in the Northwest, producing positive solar anomalies in that region. Washington state experienced the second driest April to May period on record.

Q3

High pressure ridges in the Pacific Northwest and in the southern U.S. brought warmer and drier than normal conditions to these regions, resulting in positive anomalies in solar irradiance. Many El Niño-enhanced storms formed in the Equatorial Pacific, but they did not directly impact the West Coast because of the presence of the ridge. During September, many short wave disturbances traveled along the upper level flow, with some troughs lingering across the western U.S. This resulted in ridges dominating downstream of the lows, over the central and northeast U.S., corresponding to the positive solar anomalies observed in these regions.

Q4

Throughout this quarter, atmospheric circulations over the U.S. were strongly influenced by El Niño. Energy from El Niño created a highly active jet-stream, which in turn produced short-wave troughing and ridging activity along its path. In the southern U.S., the fourth quarter began with several low-pressure weather systems joining paths with the remnants of the slow-moving Hurricane Patricia. This resulted, once again, in severe flooding in Texas, and in Louisiana. In fact, from January through December 2015 Texas had the wettest 12 months on record. As the quarter progressed, weather systems continued to bring moisture from the Gulf of Mexico into the Gulf States, the Carolinas, and up to the mid-Atlantic states, generating above-normal precipitation levels which produced strong negative insolation anomalies in these regions. The positive solar irradiance anomaly over the Northeast is attributed to a ridging pattern which resulted in drier than normal conditions.