

Unit 23

1. Various methods of how to calculate the SOI exists. The Australian Bureau of Meteorology uses the Troup SOI, a standardized anomaly of the mean sea level pressure difference between Tahiti and Darwin $\overline{P_{Darvin} - P_{Tahiti}}$. It is calculated as follows:

$$SOI = 10 \frac{(P_{Darvin} - P_{Tahiti}) - \overline{(P_{Darvin} - P_{Tahiti})}}{\sigma_{P_{Darvin} - P_{Tahiti}}}$$

Where P_{Tahiti} and P_{Darvin} are the monthly mean pressure at these locations and $\overline{(P_{Darvin} - P_{Tahiti})}$ is the long term average of these pressure differences for that month and $\sigma_{P_{Darvin} - P_{Tahiti}}$ is the standard deviation of the pressure differences in the considered month. This definition yields to SOI values between -35 and $+35$. SOI is given as a whole number. The Bureau uses 1933 to 1992 as the long term mean. Positive SOI above $+7$ are typical of a La Niña. Use the excel spread sheet and calculate the SOI.

2. Use the PDO index in the excel spread sheet. Investigate for overlapping time the SOI and PDO. Discuss what you find.