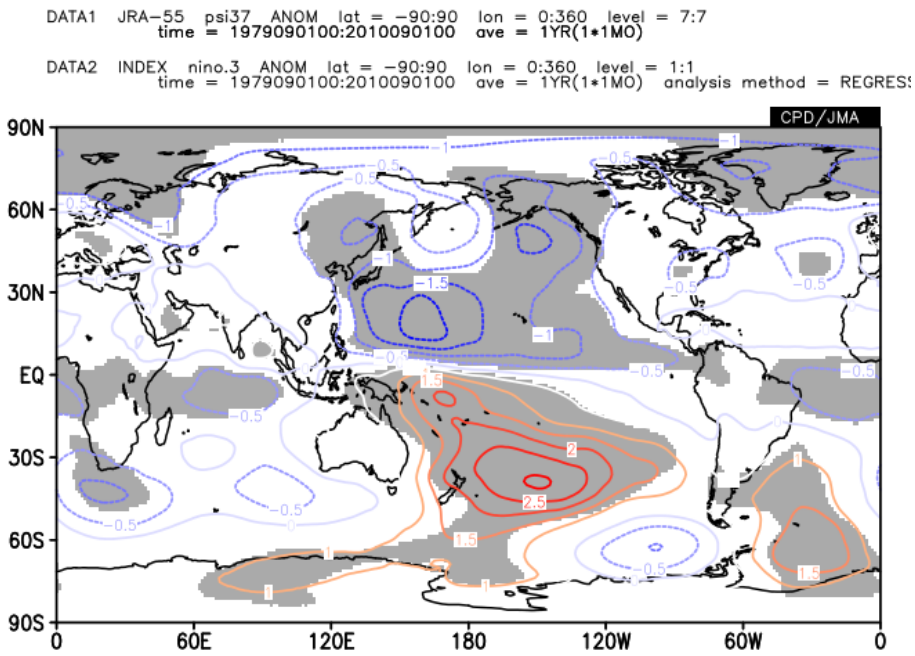
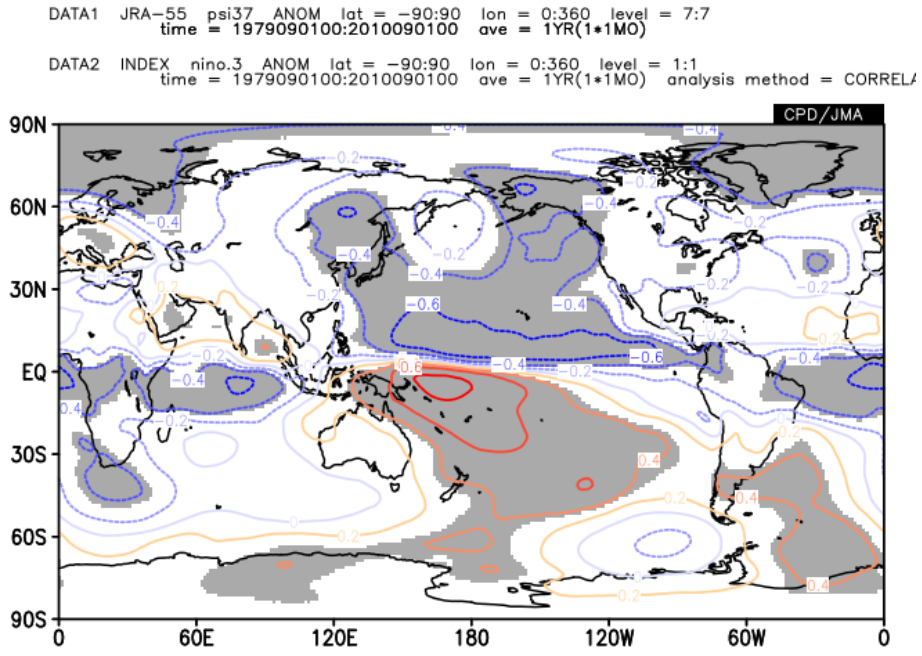
Regression and Correlation Analysis



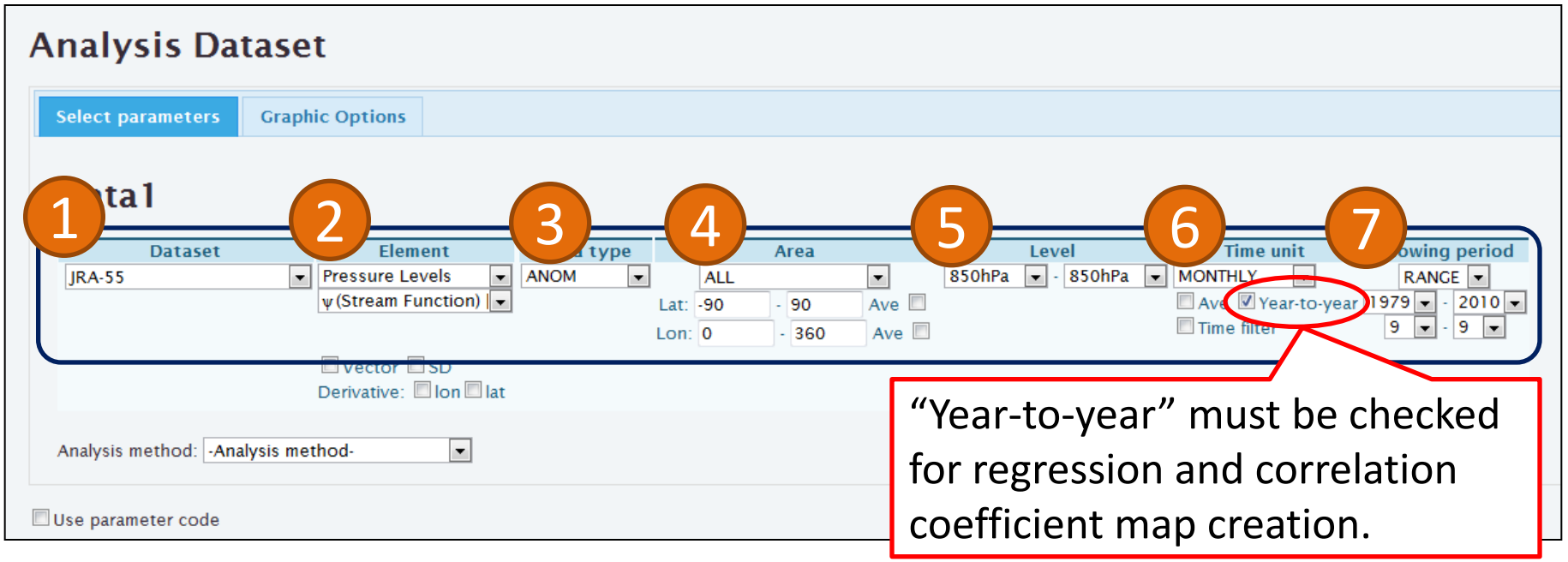


Left: regression coefficients; right: coefficient of correlation between NINO.3 SST anomalies and 850-hPa stream function anomalies

The contours show regression and correlation coefficients, and shading indicates a 95% confidence level.

- Create a regression and correlation coefficient map.

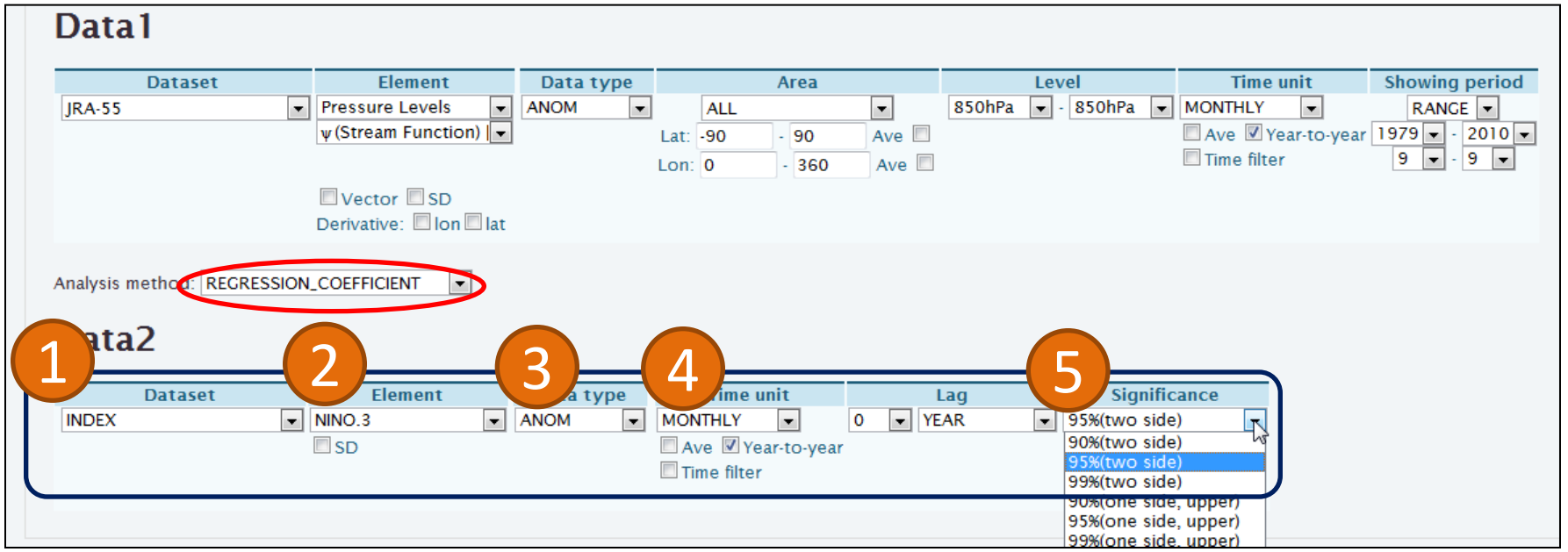
Regression and Correlation Analysis



1. Dataset: JRA-55
2. Element: "Pressure Levels" -> "ψ (Stream Function)"
3. Data type: ANOM
4. Area: ALL
5. Level: 850hPa
6. Time unit: MONTHLY

   Check "Year-to-year" to create a regression and correlation coefficient map.
7. Showing period: "1979"–"2010", "9"–"9"

Regression and Correlation Analysis



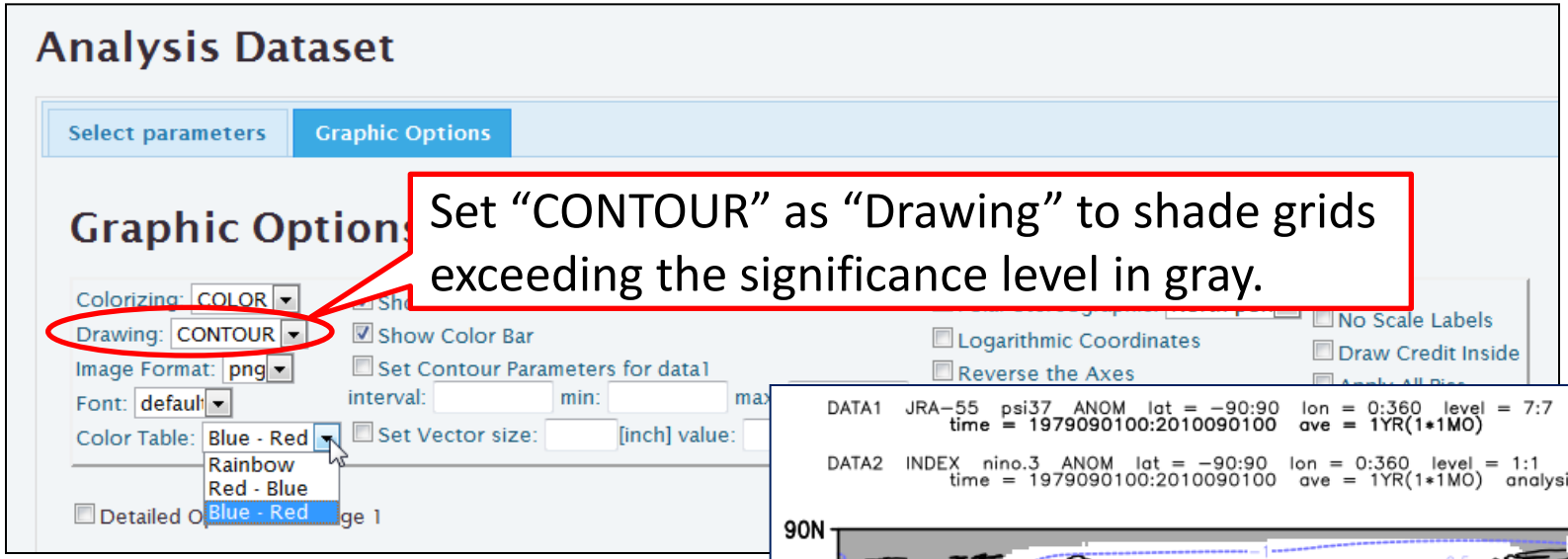
Select “REGRESSION_COEFFICIENT” as the “Analysis method”.

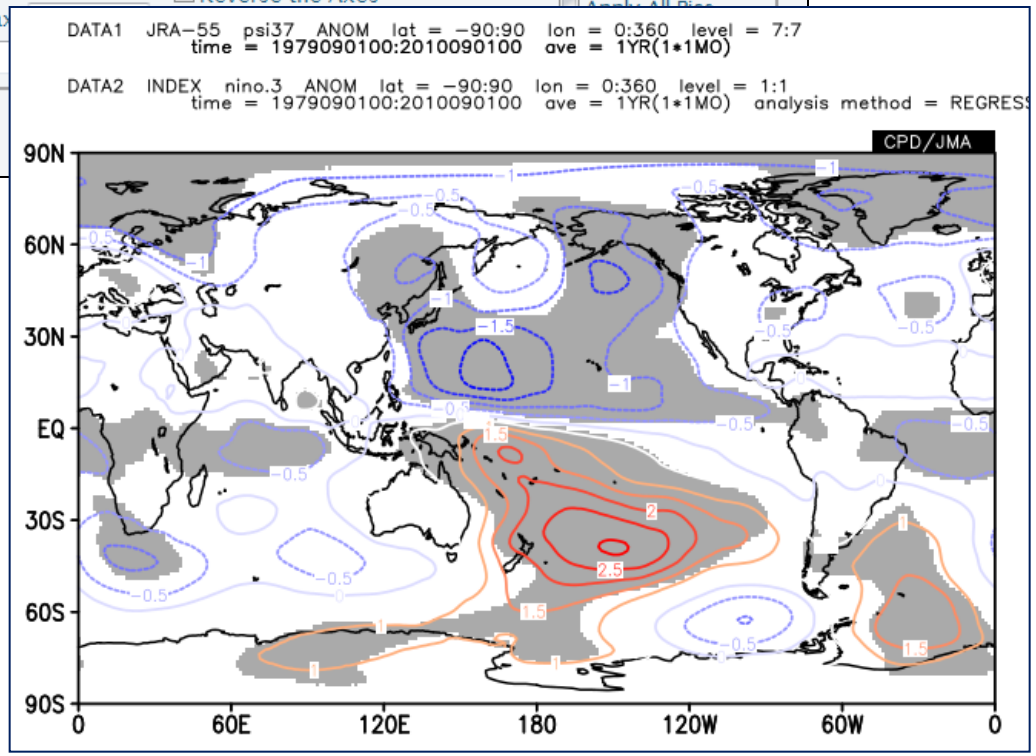
1. Dataset: INDEX
2. Element: NINO.3
3. Data type: ANOM
4. Time unit: MONTHLY

   Check “Year-to-year” to create a regression and correlation coefficient map.
5. Significance: “95% (two side)”

   Significance testing based on t-testing can be used in analysis.

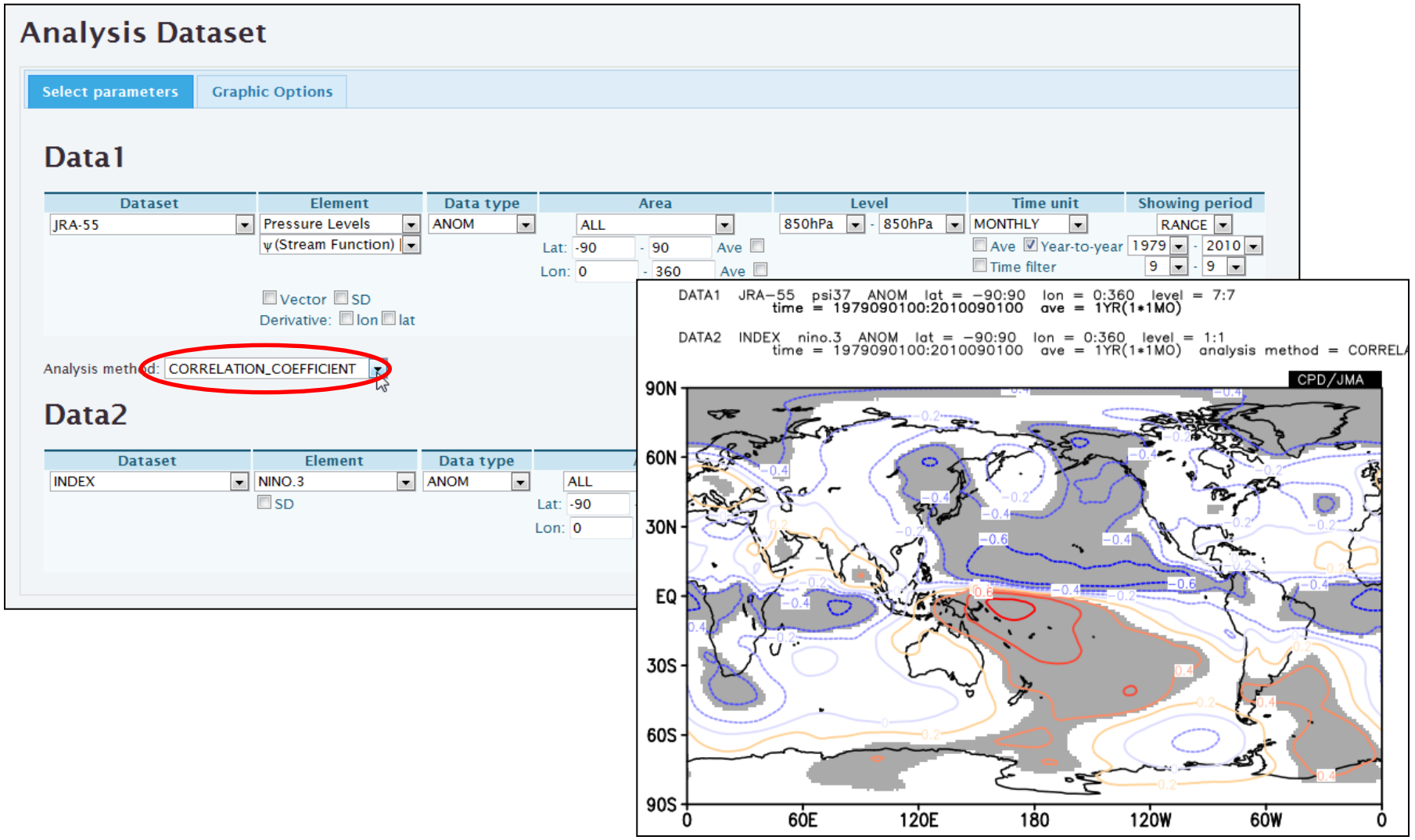
Regression and Correlation Analysis





- Set contour and shading properties to show the significance level.

Regression and Correlation Analysis



- For correlation analysis, select “CORRELATION ANALYSIS” as the “Analysis method”.

Regression and correlation analysis

- Regression and correlation analysis are often used to examine climatological systems such as teleconnections.
- The term “correlation coefficient” refers to the degree of the correlation, and “regression coefficient” refers to the gradient of the regression line.
  - A correlation coefficient of around +1 or -1 represents a clear linear correlation between the targeted data, and a value of around zero indicates a weak correlation.