

GLOSSARY**Appendix A – Glossary**

<i>Bayesian</i>	A statistical framework that expresses uncertainty using probability distributions. (Bayesian statisticians explicitly combine data with subjective knowledge to learn about physical processes. This is accomplished using <i>Bayes' theorem</i> .)
<i>Bayes' theorem</i>	As implemented in scientific practice, this theorem essentially states that uncertainty conditional on available data and expert knowledge is proportional to the product of the uncertainty in the data and the uncertainty in expert knowledge.
<i>Covariate</i>	A variable used in a statistical model to predict the value of a response variable. Covariates are often known as <i>predictors</i> , and these two terms are used interchangeably.
<i>Cyclogenesis</i>	The process that creates a low pressure system or cyclone or intensifies an existing one.
<i>Downscaling</i>	Quantification of the relation of local- and regional-scale climate variables to large scale atmospheric patterns. These patterns may be observed or simulated by dynamical climate models.
<i>Dew point temperature</i>	Temperature to which air needs to be cooled for condensation to occur at a given atmospheric pressure and mixing ratio.
<i>El Niño</i>	Cyclical warming of the East Pacific Ocean sea water temperatures off the western coast of South America that can result in significant changes in weather patterns in Australia and elsewhere.
<i>El Niño - Southern Oscillation</i>	A two to 7-year oscillation in atmospheric pressure, ocean temperatures and rainfall associated with El Niño, linked to warming of the ocean in the equatorial eastern and central Pacific.
<i>Geopotential height</i>	Work that must be done against gravity to raise a mass of 1 kg from sea-level to the level of interest in the atmosphere. (It approximates the actual height of a pressure surface above mean sea-level.)

<i>Markov chain</i>	A random process in which the probability that a certain future state will occur depends only on the present or immediately preceding state of the system.
<i>Mean Sea Level Pressure</i>	Total atmospheric pressure at the average height of the sea for all tidal stages over a 19-year period
<i>Mixing Ratio</i>	Ratio of the mass of water vapour to the mass of dry air in a given volume of air.
<i>Precipitation</i>	Any and all forms of water that falls from clouds and reaches the earth's surface.
<i>Predictor</i>	See <i>covariate</i> .
<i>Ridge</i>	An elongated area of high atmospheric pressure that is associated with an area of maximum anticyclonic circulation. (An anticyclone is also known as a high pressure system.)
<i>Southern Annular Mode</i>	A ring of climate variability that encircles the South Pole and extends to southern Australian latitudes. The SAM involves alternating changes in windiness and storm activity between the middle (40-50°S) latitudes and higher latitudes, over the Southern Ocean and sea ice zone of the Antarctic.
<i>Time series</i>	A set of data recorded sequentially in time.
<i>Trough</i>	An elongated area of low atmospheric pressure that is associated with an area of minimum cyclonic circulation.

Appendix B - List of Abbreviations and Acronyms

ACCESS	Australian Community Climate and Earth System Simulator
AR4	Fourth Assessment of the Intergovernmental Panel on Climate Change
BoM	Bureau of Meteorology
CMIP3	Coupled Model Intercomparison Project 3
CSIRO	Commonwealth Scientific and Industrial Research Organisation
ENSO	El Niño/Southern Oscillation
EOT	Empirical orthogonal teleconnection
GCM	General circulation (or global climate) model
IOCI	Indian Ocean Climate Initiative

IOD	Indian Ocean Dipole
IPCC	Intergovernmental Panel on Climate Change
MSLP	Mean Sea Level Pressure
NCEP	National Centre for Environmental Prediction, National Oceanic and Atmospheric Administration, USA.
NCAR	National Center for Atmospheric Research, Boulder, Colorado, USA
NHMM	Nonhomogeneous hidden Markov model.
RaVE	Rapid variable elimination. (A statistical method for generating parsimonious predictor sets.
SAM	Southern Annular Mode
SOI	Southern oscillation index
SST	Sea surface temperature
SWWA	South West Western Australia
WA	Western Australia