GLOSSARY of ABBREVIATIONS and TERMS
in the AREA FORECAST DISCUSSIONS

This glossary was developed by Brandt Maxwell, Forecaster at NWS San Diego.

00Z: midnight Greenwich (universal) time, 4PM PST, 5PM PDT
12Z: noon Greenwich (universal) time, 4AM PST, 5AM PDT
50H: 500-mb pressure (height) level
70H: 700-mb pressure (height) level
AFD: area forecast discussion
AVN: aviation model
BKN: broken clouds (6/10 to 9/10 cloud coverage)
CAA: cold air advection
CI: cirrus
CONV: convergence
CWA/CWFA: county warning (and forecast) area
DIV: divergence
DVV: downward vertical motion
ECM/ECMF: European Centre for Meteorology model
ETA: "ETA" (early-run) model
JET: jet stream
LI: lifted index
LOX: NWS office in Oxnard, CA
MOS: model output statistics
MRF: medium-range-forecast model
MSLP: mean sea level pressure
MSO: "Meso-ETA" model
NGM: Nested Grid Model
NKX: Miramar (location of twice-daily sounding)
NOG: "NOGAPS" (Navy) model
NPW: Non-Precipitation Warning/Advisory
NVA: negative vorticity advection
OVC: overcast
PGRADS: pressure gradients
POP: probability of precipitation
PVA: positive vorticity advection
PW: precipitable water
QPF: quantitative precipitation forecast
RH: relative humidity
RUC: Rapid Update Cycle model
SC: strato-cumulus
SCT: scattered clouds (1/10 to 5/10 cloud coverage)
SGX: NWS office in San Diego
SKC: sky clear
SST: sea surface temperature

ST: stratus
S/WV: short wave
TEMP: temperature
UK: United Kingdom model
UVV: upward vertical motion
VIL: vertically integrated liquid
VIS: visibility
VORT MAX: vorticity maximum
WAA: warm air advection
WAD: wind advisory
WSR-88D: NEXRAD Doppler radar
ZFP: zone forecasts

Brief Explanations/Definitions of Some of the Technical Terms:
(This has terms not generally found in other Internet glossaries.)

Anti-cyclonic Circulation: See cyclonic circulation.

Convergence: Horizontally, this is where more air (via wind) is entering an area than exiting. The imbalance is compensated by vertical motion of the air and pressure changes. The opposite is divergence.

Cyclonic Circulation: This is circulation flowing in a counter-clockwise direction (Northern Hemisphere) and is associated with low pressure. Anti-cyclonic circulation is the opposite, flowing clockwise and associated with high pressure.

Divergence: See convergence.

Dynamics: This is a general term that covers the atmospheric motion properties (horizontal and vertical). Generally, if someone says there are "good dynamics" for a storm, then there is much upward vertical motion and lots of spin.

Echo Tops: This is the highest altitude of a storm/precipitation area, as detected by radar.
Eddy: This is a small-scale area of rotation. Usually, in southern California, mention of an eddy refers to the coastal eddy, which is a usually small area of circulation over the coastal waters.

Instability: See Stability.

Lapse Rate: See Stability.

Lifted Index: This is a measure of stability in the atmosphere. Higher lifted index (LI) values means that the temperature cools slower with height than with lower LI values. A numerical value less than zero means the atmosphere is very unstable, and this is good for convective precipitation.

Marine Layer: This is a marine-induced moist layer of air near the surface below a temperature inversion. The depth of the marine layer varies widely between a few hundred feet and over a mile, but typically it is around 1500 feet.

Model Output Statistics: This is automated computer guidance for features such as high and low temperatures, probability of precipitation or cloud cover. It is run twice per day for the NGM and AVN models, and once per day for the MRF.

Negative Vorticity Advection (NVA): See Vorticity.

Non-Precipitation Warning/Advisory (NPW): This product (issued as LAXNPWSAN) includes dense fog advisories, high wind warnings, wind advisories, frost advisories, freeze warnings and excessive heat warnings.

Offshore Flow: This is air (usually near the surface) moving from land to sea.

Omega: This is a variable (usually seen in the models) that defines vertical motion at a level in the atmosphere (most often used at 850 and 700 mb). Positive values of omega actually mean downward motion, but in the AFD, usually "upward" and "downward" are used versus "positive" and "negative". Precipitation sometimes occurs with upward motion, while fair weather usually occurs with downward motion.

Omega Block: This has nothing to do with the variable omega. Instead, this is a pattern where there is strong high pressure aloft to the north of the jet stream. An air parcel about five miles above the earth would move in a shape of the greek letter "omega" around the area of high pressure.

Onshore Flow: This is air (usually near the surface) moving from sea to land.

Positive Vorticity Advection (PVA): See Vorticity.

Precipitable Water: This is the amount of rainfall that would occur by simply condensing out all of the water vapor in the entire atmosphere above a certain point.

Pressure Levels: This is a level of constant pressure. This is a really a "wavy floor" in the atmosphere, where the height typically varies about 10 percent. The models are usually viewed using pressure levels instead of fixed height levels (height levels are in straight meters above sea level). The most common pressure levels used are 500, 700 and 850 millibars (and 250 millibars for the jet stream).

Quantitative Precipitation Forecast (QPF): This is a numerical forecast of precipitation for a specified (usually 6 hours) time period. The QPF can be created either by a model, like the ETA or AVN, or by a forecaster.
Ramsdis: This is the main satellite imagery system used at the NWS in San Diego.

Shear: This is where the wind speed and/or direction change rapidly over a small area, either vertically or horizontally.

Stability: This is how fast the air becomes less dense with height. It is dependent on temperature, so an atmosphere that has a slow temperature change (or a small lapse rate) is stable. An unstable atmosphere would have a "steep" lapse rate, where the temperature decreases fast with height, so the density does not, and thus the atmosphere overturns easily which is good for thunderstorms.

Temperature Inversion: This is a level or layer in the atmosphere where the temperature increases with height (versus the usual decrease).

Theta-E: This is a measure of energy available for convection based on temperature and moisture at a given level.

Thickness: This is the difference in height between two pressure levels. The thickness is directly related to the average temperature in the column of air between the pressure levels (thus, higher thicknesses means warmer temperatures, at least aloft). The most common thickness used is for the 1000-500mb layer.

Tilt: This is the orientation of a ridge or trough. Positive tilt means that the orientation is northeast-southwest, and negative tilt means that the orientation is northwest-southeast.

Vertically Integrated Liquid: This is the amount of liquid water that the radar detects in a vertical column of the atmosphere for an area of precipitation. Higher values are associated with either heavier rain or hail.
VIL Density: This is simply the VIL (vertically integrated liquid) divided by the echo tops of a radar-detected storm/precipitation-area. Higher values are associated with larger hail.
Vorticity: This is basically the amount of rotation occurring at a certain height in the atmosphere. A vorticity maximum is the location where maximum rotation is occurring. Positive vorticity advection (PVA) occurs in front of (or downwind) from a vorticity maximum, and negative vorticity advection (NVA) occurs behind (or upwind) from the vorticity maximum.

Wind Direction: Wind direction is defined as the direction that the wind is coming FROM. Thus, a westerly wind is air moving from west to east.
Zonal Flow: This is wind flow aloft moving straight from west to east over a large area.