Products and Services Offered by the NWS in San Diego

The NWS prepares a large number of various products that provide specific information. Each product name is identified by its code containing nine letters. The code formula is explained under "Communications and Product Dissemination" above. For a listing of NWS products, see Appendix A. The products are organized and described in the following categories. Note: All products originating from San Diego begin with the LAX identifier. For simplicity, the products below will be identified only by the following six letter code.

Climate - click on "Climate - Local" on our homepage for more information.

The **Daily Temperature and Precipitation Summary** (RTPSGX) reports the daily maximum and minimum temperatures and precipitation for numerous cities in our forecast area from a variety of weather stations, such as airports, cooperative observers, and remote weather systems. The RTP is issued at 430 am/pm and again at 530 pm largely to provide the data to local news media for early morning and late afternoon broadcasts. Updates may occur during the evening if and when additional data arrives. Note that these temperatures are the 24 hour high and low, which may not necessarily agree with the calendar day because thermometers are reset at the time of the 4 pm observation. This can lead to a problem. For example, let's say the high in Anaheim was 80 degrees one day. The 4 pm report gave the high of 80 and the current temperature of 77. The next day is much cooler; Fullerton and Santa Ana each report a high of 65 degrees. The report from Anaheim is a high of 77. Clearly, this is what we call a "carry-over". The high of 77 occurred at the time the thermometer was reset around 4 pm the previous day. Stations that report once daily are susceptible to carry-overs when the following day is cooler. Other problems are more rare, but also possible. An observer may not have reported for multiple days for a variety of reasons and the thermometer would not have been reset. The data given may then be the highest and lowest temperatures for the period, not the current day. Also, the high temperature may actually occur after the 4 pm observation. Please take special note of the disclaimer on the product and understand that some highs that appear abnormally high may be carried over from the previous day.

The **Climate Report** (CLIxxx) shows the updated climate values for the day for a number of cities in our area. Daily climate reports are prepared for many sites with automated weather equipment. In the product's header, xxx represents the three-letter identifier, normally an airport. Each CLI product is a daily almanac of temperature, precipitation, and several other weather conditions displayed with daily normal values, updated totals and records. These products are updated twice daily early in the morning and in the afternoon.

The **Local Climatological Data (CF6)** chart is a look at the current month of daily records. This is not an issued product, but is available on our web site. These are prepared for all cities for which there is a climate report (CLIxxx).

The **Monthly Weather Summary** (CLMSAN) is updated on the 1st day of each month, detailing the previous month's statistics for these same cities/airports that have a CLI report. This product summarizes the weather of the previous month.

The **Record Report** (RERSGX) is a report of daily record temperatures or rainfall amounts met or exceeded at many cities in the area. This product is automatically headlined on the home page. Only some of the cities that report daily on the RTPSGX keep a history of daily records. Some of these cities have a short history dating back only to the 1970s. This makes the records easier to reach, and therefore less than remarkable. San Diego, Santa Ana, and Riverside are three stations with a much longer climate record.

Current Observations - click on “Current Conditions - Observations” on our homepage for more information.

The **Regional Weather Roundup** (RWRSGX) is a collective of current automated observations in the region including sky condition, temperature, dew point, relative humidity, wind speed and direction, barometric pressure and trends. When applicable, the remarks column shows very low visibilities, heat index or wind chill index values.
The **Coastal Weather Observations** (CGRSGX) product lists the current weather and sea conditions at several coastal stations, and is updated every three hours, but is very limited overnight.

Public Forecasts

The **Zone Forecast Product** (ZFPSGX) has traditionally been the most well known and used product we prepare. It is issued at 330 am and 230 pm every day and as necessary (when the forecast does not match current or expected conditions). It is generated from a digital database maintained and updated by forecasters. Graphical digital forecasts are also available providing spatial and temporal detail not previously available with text products, see Forecasts – Digital for more on these increasingly popular forecasts.
The **Hazardous Weather Outlook** (HWOSGX) is a product issued when any expected weather in the following week may need the issuance of an advisory or a warning. It is issued by 6 am on days when these expected conditions exist, and updated as necessary. The outlook also presents a flash flood potential rating during the monsoon season in each mountain and desert zone as none, low, moderate or high.
The **Short Term Forecast** (NOWSGX), also called the “nowcast”, is a brief detailed forecast usually covering two hours, but no more than six hours. These forecasts are issued to add beneficial detail, for example, describing location, movement, and possible impact of thunderstorms.
The **Area Forecast Discussion** (AFDSGX) is a discussion of the reasoning and thinking behind the forecast. A simple explanation of the general weather pattern for the coming week is given in the synopsis. The discussion portion contains a wealth of information about the current and future weather developments and the particular challenges involved in the current forecast. It is routinely updated four times daily, at 330 am, 930 am, 230 pm, 930 pm and other times when needed. The discussion on the web contains links that go to the non-routine products in effect and links that explain some of the more complex meteorological terms that may be used.
The **Tabular State Forecast for California** (SFTSGX) and the **Point Forecast Matrix** (PFMSGX) are part of the digital suite of products generated by the gridded digital database. The SFTSGX is a forecast of specific temperatures and chances of precipitation for selected cities across Southern California. The PFMSGX is a highly detailed forecast of numerous weather parameters in three hour increments for the next two days for a select few cities. Both these products are issued at least twice daily at 330 am and 230 pm.
The **Quantitative Precipitation Statement** (QPSSGX) is a routine forecast of rainfall amounts during the wet season, roughly November through April, but also during other times of the year when a significant precipitation event is expected. The product shows in table format expected rainfall amounts in 6-hour intervals for the coming three days for numerous locations in the forecast area. This product is issued twice daily by 4 am/pm.

Non-routine Products

A **Watch** is issued well in advance when conditions are favorable for a weather event to occur that can threaten life and/or property in the watch area.

A **Warning** is issued when a weather event that can threaten life and/or property is imminent or already occurring in the warned area. Emergency Alert Systems (**EAS**) are activated for short-fused warnings, such as a Severe Thunderstorm Warning.

An **Advisory** is issued when serious conditions are present and cause significant inconvenience. It may lead to a watch or warning.

Warning and Advisory criteria are found in Appendix D.

Verification

Observed weather conditions are essential to help the NWS determine which non-routine products to issue. When warnings are issued, weather reports are collected to verify the warning. A collection of these reports will be issued as a **Local Storm Report** (LSRSGX). With the verification data, studies can be made to learn how well the forecast team warns correctly or creates a false alarm. In this way the NWS takes responsibility for its warnings. Verification is an important part of the ongoing improvement of the warning process.

Hydrology – Flash Floods and Floods

Flash floods are defined as a rapid rise in water flooding a local area, followed by a rapid drop in water level. Any small stream, creek, arroyo, wash or paved urban areas can be briefly inundated by a flash flood. Flash floods should be water flowing rapidly at least six inches deep. Dam breaks or breaches cause flash flooding downstream. When any of these are expected a **Flash Flood Watch** (FFASGX) and subsequently a **Flash Flood Warning** (FFWSGX) are issued. A **Flood Advisory for Urban and Small Stream Flooding** (FLSSGX) informs of inundation conditions not threatening life and property, but can be dangerous if not taken seriously. Examples of advisory conditions include a flooded intersection or onramp to a freeway that is blocked by water and disrupting traffic flow. The **Flash Flood Statement** (FFSSGX) is issued to update or cancel Flash Flood Warnings (FFWSGX).

A **Flood Watch** (FFASGX) and subsequently a **Flood Warning** (FLWSGX) are issued when a mainstem river is expected to overflow its banks. A **Flood Statement** (FLSSGX) updates a warning and may update and summarize more than one warning. The NWS defines a flood as a normally dry area inundated with water along an established watercourse such as a mainstem river. In San Diego's forecast area, there are four rivers that qualify as such watercourses: The San Diego River at Fashion Valley, the San Luis Rey River at Oceanside, the Santa Margarita River at Ysidora, and the Mojave River at Victorville (Mojave Narrows). The **River Statement** (RVSSGX) provides specific forecast levels at these flood gages during flooding events.

Winter Weather

All of the following winter weather watches, warnings and advisories come under the product header WSWSGX. The **Winter Storm Watch** and **Winter Storm Warning** are issued when a significant winter storm will impact the region. These detail the adverse impacts caused by heavy snowfall combined with strong winds. When the snowfall and winds are not expected to reach warning criteria, a **Snow and Blowing Snow Advisory** is issued to communicate the lesser impact. If heavy snowfall is expected without strong winds, a **Heavy Snow Warning** is issued. If the snow will be heavy, but not reach warning criteria, a **Snow Advisory** is issued. When snowfall and strong winds combine to create white-out conditions and near zero visibilities, a **Blizzard Warning** is issued. Although unheard of in Southern California, ice storms or freezing rain events would be covered by an **Ice Storm Warning** and a **Freezing Rain (or Drizzle) Advisory**, respectively. Several different winter weather hazards can be in effect at once under one WSWSGX product.

Severe Weather

Severe weather is associated with thunderstorms, which can bring any combination of deadly lightning, tornadoes, large hail, heavy rain (with associated flooding), and any other strong damaging winds. When conditions are favorable for severe thunderstorms or tornadoes, the Storm Prediction Center issues a **Severe Local Statement** (SLSCA). This becomes a **Severe Weather Watch** for Southern California in a redefining statement issued by the Oxnard office. A **Severe Thunderstorm Warning** (SVRSGX) is issued when severe thunderstorm warning criteria are met or are imminent. It is not mandatory that a local statement or a watch be in effect before a warning is issued (in fact, it is rare). When a tornado is detected by weather spotters or Doppler Weather Radar, or the forecaster strongly believes a tornado is about to develop, a **Tornado Warning** (TORSGX) is issued. Updates are made to either or both of these warnings with a **Severe Weather Statement** (SVSSGX). Flash floods occurring with severe thunderstorms are detailed in their own separate **Flash Flood Warning** (FFWSGX). Severe weather over coastal waters is covered by a **Special Marine Warning** (SMWSGX), which warns of waterspouts and other severe and hazardous boating weather. Severe weather is often extremely localized in time and space. Accordingly, these products are very short-fused and cover a small area.

Weather without Precipitation

A Non-Precipitation Weather product (NPWSGX) covers a great variety of weather events that do not include precipitation. This product can be an advisory, a watch or a warning. A **High Wind Watch** and subsequently a **High Wind Warning** are issued when strong winds causing potential damage are expected. A **Wind Advisory** is issued when strong winds are expected, but fall below warning criteria. A **Wind Chill Warning** or a **Wind Chill Advisory** is issued when strong winds combine with very low temperatures. Blowing dust and/or sand that reduce visibility may prompt a **Blowing Dust/Sand Advisory**. When dense fog develops in more than just a localized sense, a **Dense Fog Advisory** is issued. Extremes in temperature are also covered by the product. High temperatures and humidity may warrant an **Excessive Heat Warning** when the Heat Index becomes dangerous. A **Freeze Warning** is issued when freezing temperatures

present a serious threat to crops. A **Frost Advisory** is issued when a freeze is less serious.

Marine Forecasts and Warnings

The **Coastal Waters Forecast** (CWFSGX) is a routine forecast of winds and sea state on the coastal waters out to five days. It is issued four times daily at 230 and 830 am/pm PST and 330 and 930 am/pm PDT. The forecast covers the coastal waters from the San Diego County shore out to 60 nautical miles (about five nm beyond San Clemente Island). The area is divided into two zones by a line 30 nautical miles off the coast parallel to the coast. Within the body of the forecast a **Small Craft Advisory** may be headlined when winds begin to present a hazard for small vessels. If seas are especially hazardous, it will be specified as a **Small Craft Advisory for Hazardous Seas**. The following rare warnings, **Gale**, **Storm**, **Tropical Storm,** or **Hurricane,** may be headlined when very strong winds and/or stormy seas are expected. The **Surf Zone Forecast** (SRFSGX) is issued twice daily at 2 am/pm and contains surf and rip current risk information for the beaches of Orange and San Diego Counties. A **Marine Weather Statement** (MWSSGX) describes potentially dangerous boating conditions such as waterspouts or non-severe thunderstorms on the open water. A **High Surf Advisory** (CFWSGX) is issued when large and dangerous surf is widespread along the coast or when minor tidal overflow occurs. When the weather over the water becomes severe with strong thunderstorms, a **Special Marine Warning** (SMWSGX) is issued. Coastal flooding caused by very high tides and/or large surf is covered by a **Coastal Flood Watch** and subsequently a **Coastal Flood Warning** (CFWSGX). If an earthquake occurs along the Pacific Rim that will generate a tsunami along the coast, a **Tsunami Warning** (TSUWCA) will be issued by the West Coast and Alaska Tsunami Warning Center. A **Tsunami watch**, **Tsunami Advisory**, or **Tsunami Information Statement** (TIBWCA) may be issued. If Southern California impacts are expected, these products are reissued with more local details by the San Diego Forecast Office.

Aviation Products

Aviation products are coded and disseminated to the aviation community, not through the standard media to the public, but are available on our web site. A **Terminal Aerodrome Forecast** (TAF) provides detailed changes in wind speed and direction, visibility, cloud coverage, cloud ceiling height and precipitation for local airports out to 24 hours. These airports include San Diego-Lindbergh Field (TAFSAN), McClellan-Palomar in Carlsbad (TAFCRQ), Orange County-John Wayne in Santa Ana (TAFSNA), Ontario (TAFONT), Palm Springs (TAFPSP), and Thermal (TAFTRM). A **Transcribed Weather Broadcast Text** (TWB432) is the 12-hour air-route corridor forecast encompassing the route between SNA and SAN, including the mountains of San Diego County. This describes weather conditions to be expected along the route. All forecasts are updated every six hours or updated more frequently as necessary.

Fire Weather

A **Fire Weather Forecast** (FWFSGX) is similar to the public zone forecast, but gives more detail regarding relative humidity, winds and lightning potential. A **Fire Weather Watch** and subsequently a **Red Flag Warning** (both RFWSGX) are issued when dangerous wildfire potential exists, i.e., when strong winds combine with low relative humidity and low fuel

moisture. Spot weather forecasts, which are site specific for wildfires, controlled prescribed burns, hazardous material spills, or for any other public agency support, are issued upon request.

News Products

A **Special Weather Statement** (SPSSGX) is a description of an upcoming significant weather event, such as a winter storm. It is usually allowed to expire once the weather event is occurring and is covered by a warning or advisory, such as a Winter Storm Warning. The **Rainfall Storm Total Summary** (RRMSGX) is a periodic update to storm precipitation totals during or after a given storm. This product is automatically headlined on our home page. The **Local Storm Report** (LSRSGX) is issued during and after an intense weather event, documenting the impact of heavy rain, hail, flooding or severe weather of any kind. Several reports may be issued during the event as information becomes available. A summary report is issued at the end of the event. A **Public Information Statement** (PNSSGX) is a multi-purpose news product. Its information can range from a summary of a weather event, an update to new technology, a change in the format of a product, a change in local policy, or other purposes.

Weather Safety and Preparedness – Click on "Weather Safety – Education" on our homepage for more information.

The primary mission and responsibility of the National Weather Service is to protect life and property. The goal is to warn for all potentially dangerous weather events with sufficient lead time so emergency personnel and the public can take action to eliminate or minimize the loss of life and/or property. However, for many reasons a dangerous weather event may strike without a warning being issued, or the public may not be otherwise prepared. Weather awareness and preparedness are vitally important especially in our region where residents can become complacent because dangerous weather is relatively infrequent and the population is dense.

Upon the initial issuance of a warning, the **Emergency Alert System (EAS)** is activated. Local news radio stations with this responsibility receive this alert of three tone bursts and proceed to broadcast the warning over their station, in accordance with regulations of the Federal Communications Commission (FCC). On television the warning message scrolls across the top or bottom of the screen. NOAA weather radios broadcast the warning direct from the NWS office (specially designed receivers kick on automatically when a warning is issued). The NWS – San Diego web site will indicate the warning on a color coded map. Sadly, these efforts are sometimes not sufficient to inform all endangered parties in a timely fashion. We encourage all residents and visitors to become aware of the potential weather dangers associated with the area in which the live, work, and visit, and the means to receive these warnings, and to prepare accordingly.

Two programs of the NWS help communities to better prepare themselves for disasters. **Stormready** communities are better prepared to save lives from the onslaught of severe weather through better planning, education, and awareness. The **TsunamiReady** program is designed to help coastal communities reduce the potential for disastrous tsunami-related consequences. For more information about how to become involved, see **www.stormready.noaa.gov** and **www.tsunamiready.noaa.gov**. See Appendix E for weather safety information.