

PATTERNS OF CLIMATE, WATER PER CAPITA, WATERGY, & SUN: LAGUNA BEACH, CA

CLIMATE	AVERAGE HIGH & LOW TEMPERATURES: 1928-2008													Source: wrcc.dri.edu
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	
	65.1	66.1	67.1	69.0	70.9	73.1	76.5	78.1	77.5	74.5	70.4	66.1	71.2	°F HIGH
	43	44.1	45.8	48.4	53.0	56.1	59.3	59.6	58.2	53.7	47.5	43.4	51.0	°F LOW
	18.4	18.9	19.5	20.6	21.6	22.8	24.7	25.6	25.3	23.6	21.3	18.9	21.8	°C HIGH
6.1	6.7	7.7	9.1	11.7	13.4	15.2	15.3	14.6	12.1	8.6	6.3	10.6	°C LOW	
HIGHEST TEMP ON RECORD:		108	42.2	Sept 26, 1963				LOWEST TEMP ON RECORD:		20	-6.7	October 3, 1928		
		°F	°C	Source: wrcc.dri.edu						°F	°C			

WATER PER CAPITA	AVERAGE RAINFALL: 1928-2008													Source: wrcc.dri.edu
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	
	2.47	2.79	2.02	0.98	0.25	0.10	0.02	0.07	0.27	0.46	1.25	1.92	12.60	INCHES
	62.7	70.9	51.3	24.9	6.4	2.5	0.5	1.8	6.9	11.7	31.8	48.8	320.0	mm
	WETTEST YEAR'S RAINFALL:		28.24	717.3	1941				DRIEST YEAR'S RAINFALL:		3.45	87.6	1953	
		INCHES	mm	Source: wrcc.dri.edu						INCHES	mm			
LONGEST PERIOD W/ NO MEASURABLE PRECIPITATION: 209 days (2/28-9/24/1977)													Source: see note #1	
AREA:		9.73	SQ MILES		POPULATION:		24,131	RAINFALL INCOME:		242	GPCD			
Wikipedia		25.2	km ²		Source/Year: census.gov / 2009 est				916	lpcd				

WATERGY	Note: the percentages below are per energy source, and are not to be combined for percent of total energy consumption.												
	% of avg Laguna Beach household's electricity used for water-related purposes: ³		39%		MUNICIPAL USE:		201	GPCD					
	% of CA's annual natural gas consumption used for water-related purposes: ⁴		32%				761	lpcd					
# of gallons of diesel fuel used annually in CA for water-related purposes: ⁴		88 mil		Source/Year:		see note #2 / 2009-10							

SUN	LATITUDE:	33.5	WINTER-SOLSTICE SHADOW RATIO:*	1: 1.54	ON MAR 21	0	ON JUN 21	28N	ON SEP 21	0	ON DEC 21	28S
	Source: Google Earth				° DEGREES N or S of DUE E THE SUN RISES:							
	ELEVATION:	16	FT		° DEGREES N or S of DUE W THE SUN SETS:							
	5	m		° # of DEGREES SUN IS ABOVE THE SOUTHERN HORIZON AT NOON:		57	80	57	33			

To find current magnetic declination for location: HarvestingRainwater.com/books/volume1/volume-1-resource-pages-appendix-6/#magdec

*Object height:length of shadow cast at solar noon (Dec 21's is longest noontime shadow of year). The ratio is 1:x, where x = 1/(tangent(90-(latitude+23.44)))

Notes: 1. Jim Ashby, Service Climatologist, WRCC, via phone 5/5/2010 // 2. Per Christopher Regan, Asst General Manager, LBCWD, via phone 5/9/2011
 3. Climate Protection Action Plan downloaded 5/10/11 from <http://greenlagunabeach.com>. For municipal supply, conveyance, treatment, distribution, and wastewater treatment; not including in-home water-related energy costs such as water heating or pumping. // 4. CA Energy Commission, Final Staff Report on CA's Water-Energy Relationship, 2005. Data include energy for supply & treatment, ag use, end-users & wastewater

A. Rainwater Harvesting for Drylands & Beyond, Vol 1, or www.esrl.noaa.gov/gmd/grad/solcalc/ // B. RWHDDB Vol 1, or Mar 21 =90-latitude, Jun 21 =90-(lat-23.44), Sep 21 =90-lat, Dec 21 =90-(lat+23.44)