ONE-PAGE PLACE ASSESSMENT: CASTELLANA GROTTE, BARI, ITALIA

CLIMATE ⚐1

AVERAGE HIGH & LOW TEMPERATURES[1] — 1961 – 2011

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
°C HIGH	10.8	11.2	14.2	17.7	22.9	27.4	30.2	30.0	25.4	20.7	15.2	11.5	19.77
°C LOW	4.2	3.8	5.9	8.5	13.0	16.9	19.3	19.4	15.8	12.6	8.3	5.2	11.08
°F HIGH	51.4	52.2	57.6	63.9	73.2	81.3	86.4	86.0	77.7	69.3	59.4	52.7	67.6
°F LOW	39.6	38.8	42.6	47.3	55.4	62.4	66.7	66.9	60.4	54.7	46.9	41.4	51.9

RECORD HIGH[2]: 43.0° C | 109.4° F | *July*

RECORD LOW[2]: -7.0° C | 19.4° F | *January*

SUN ⚐2

LATITUDE: 40.9°

ELEVATION: 300 m / 984 FT

	MAR 21	JUN 21	SEP 21	DEC 21
DEGREES N or S of DUE EAST THE SUN RISES[3]	0°	33°N	0°	31°S
DEGREES N or S of DUE WEST THE SUN SETS[3]	0°	33°N	0°	31°S
SOLAR-NOON ALTITUDE ANGLE (ABOVE HORIZON)[a,3,4]	49°	73°	49°	26°

SOLAR-NOON WINTER-SOLSTICE SHADOW RATIO[b]: 1 : 2.08 ...AND AZIMUTH[c]: 0°

9AM & 3PM WINTER-SOLSTICE SHADOW RATIO[b,3]: 1 : 4.20 ...AND AZIMUTH[c,3]: 42°

WIND ⚐3

PREVAILING WIND DIRECTION[d,1] & AVERAGE SPEED[1]

MAX SPEED[1]: km/h | MPH

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
km/h													
MPH													

WATER ⚐4

AVERAGE RAINFALL (GAIN)[e,1] — 1961 – 2011

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
mm	67	68	65	48	35	27	31	28	55	66	76	82	648
INCHES	2.6	2.7	2.6	1.9	1.4	1.1	1.2	1.1	2.2	2.6	3.0	3.2	25.5

AVERAGE PAN EVAPORATION (POTENTIAL LOSS)[f,1]

mm													
INCHES													

WETTEST YEAR'S RAIN[5]: | DRIEST YEAR'S RAIN[5]:

LONGEST PERIOD WITH NO MEASURABLE PRECIPITATION[5]:

RAINFALL INCOME[g]: 6,208 lpcd / 1,640 GPCD

AREA[h,6]: 68 km² / 26.2 SQ MILES

POPULATION[h,6]: 19,435 (2010)

UTILITY-WATER USE[7]: 250 lpcd / 66 GPCD

DEPTH TO GROUNDWATER[i,8]: m | FT | year

CURRENT GROUNDWATER EXTRACTION < or > NATURAL GROUNDWATER RECHARGE[j,9,10]

WATERGY ⚐5

of AVG HOMES THAT COULD BE POWERED W/ ENERGY USED TO MOVE & TREAT CITY'S WATER[11]:

TOTEM SPECIES ⚐6

FISH: MAMMAL:

PLANT: BIRD: REPTILE:

AMPHIBIAN:

FOR MORE INFORMATION & HOW TO APPLY IT

⚐**1.** For more CLIMATE information, see the introduction and chapters 1, 2, & 4 of *Rainwater Harvesting for Drylands and Beyond (RWHDB), Volume 1, 2nd Edition*

⚐**2.** For more SUN information, see chapters 2 & 4 and appendices 5 & 7

⚐**3.** For more WIND information, see chapters 2 & 4 and appendices 5 & 9

⚐**4.** For more WATER information, see the introduction, chapters 1–4, and appendices 1–5

⚐**5.** For more WATERGY information, see chapters 2 & 4 and appendix 9

⚐**6.** For more TOTEM SPECIES information: the ethics, principles, and strategies throughout *RWHDB* help us shift from a negative to a positive impact on these species and their habitats and ecosystems, on which our quality of life also depends.

CASTELLANA GROTTE'S PLACE-ASSESSMENT NOTES

a. Altitude angle (a.k.a., elevation angle) refers to the number of degrees the sun is located above the horizon at a given time and date.

b. The solar-noon winter-solstice shadow ratio is the object's height **:** length of object's shadow cast on December 21 at noon (the longest noontime shadow of the year). The ratio is 1 : x, where x = 1 ÷ tangent (90 - (latitude + 23.44)).

c. Azimuth is the angle formed between a reference direction (here, due south) to the point on the horizon directly below a given object. Solar noon is the time on any day when the sun's azimuth is 0°. The 9 am & 3 pm winter-solstice azimuth indicates the sun's deviation, in degrees, east/west of due south at those times (±3 hours from solar noon) on December 21.

d. The direction of a prevailing wind is the direction *from* which the wind blows

e.

f.

g. Rainfall income calculated in situ w/ average rainfall, area, & population

h. Town proper

i.

j.

CREDITS: Brad Lancaster, Resource concept **|** **Megan Hartman,** Resource creation, research

CASTELLANA GROTTE'S PLACE-ASSESSMENT REFERENCES

1. Castellana Grotte weather station data, obtained from Francesco Costante of www.meteocastellana.it, via email 3 Sept 2013

2. Approximate extremes for Gioia del Colle weather station, Wunderground.com, accessed 2 Sept 2013

3. Rainwater Harvesting for Drylands & Beyond, Vol 1, or esrl.noaa.gov/gmd/grad/solcalc, accessed 2 Sept 2013

4. RWHDB Vol 1, or Mar 21 = 90–latitude, Jun 21 = 90–(latitude–23.44), Sep 21 = 90–latitude, Dec 21 = 90–(latitude+23.44)

5.

6. Wikipedia, en.wikipedia.org/wiki/Castellana_Grotte, accessed 4 Sept 2013

7. National average for Italy, per www.tusciaweb.eu/2013/07/mazzoli-incentivi-per-cambio-wc-aiuto-per-il-distretto-ceramico, published 2 July 2013. Accessed 9 Sept 2013.

8.

9.

10.

11.

12.