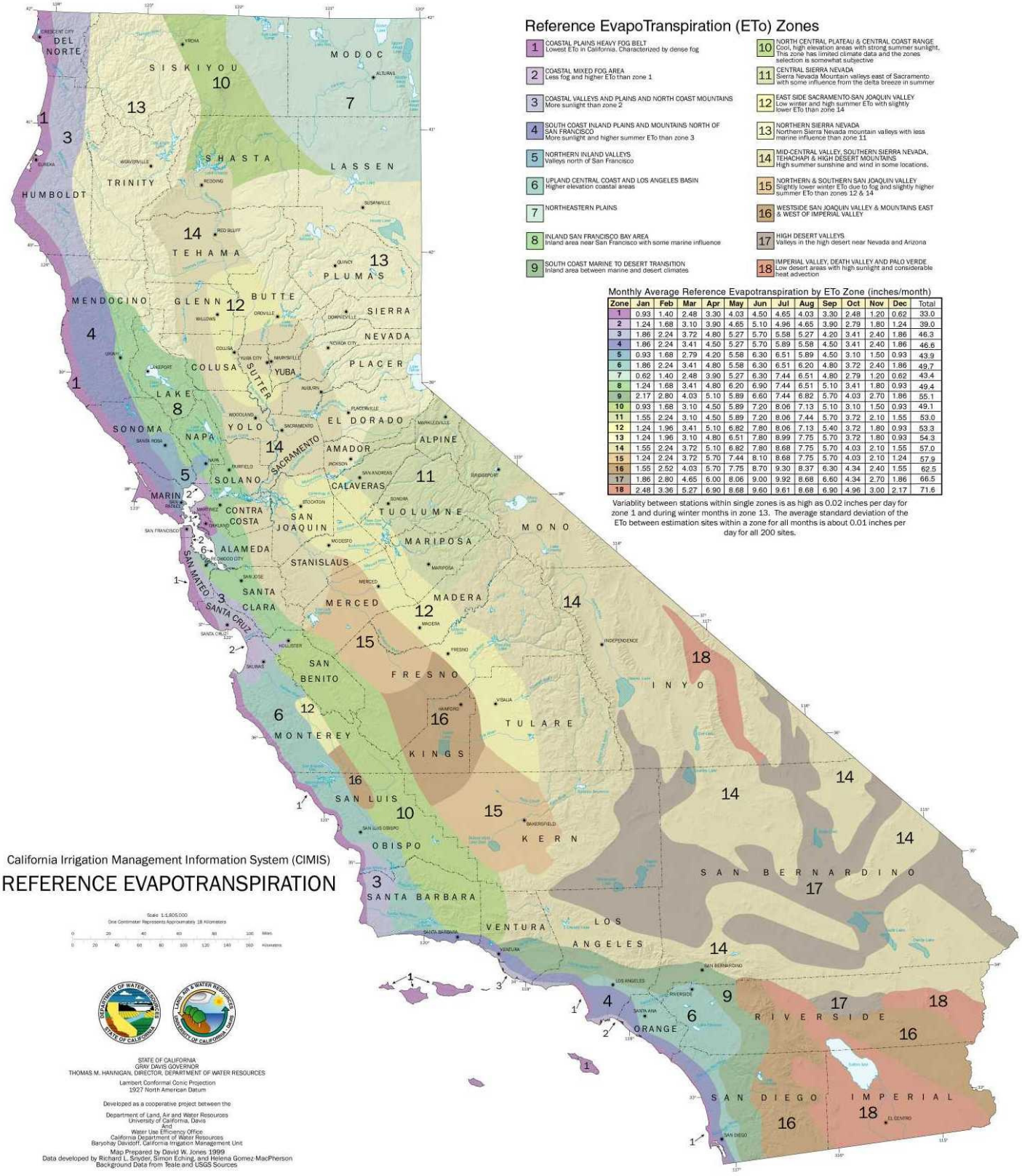


## Reference EvapoTranspiration (ETo) Zones

1. COASTAL PLAINS HEAVY FOG BELT — Lowest ETo in California. Characterized by dense fog
2. COASTAL MIXED FOG AREA — Less fog and higher ETo than zone 1
3. COASTAL VALLEYS AND PLAINS AND NORTH COAST MOUNTAINS — More sunlight than zone 2
4. SOUTH COAST INLAND PLAINS AND MOUNTAINS NORTH OF SAN FRANCISCO — More sunlight and higher summer ETo than zone 3
5. NORTHERN INLAND VALLEYS — Valleys north of San Francisco
6. UPLAND CENTRAL COAST AND LOS ANGELES BASIN — Higher elevation coastal areas
7. NORTHEASTERN PLAINS
8. INLAND SAN FRANCISCO BAY AREA — Inland area near San Francisco with some marine influence
9. SOUTH COAST MARINE TO DESERT TRANSITION — Inland area between marine and desert climates
10. NORTH CENTRAL PLATEAU & CENTRAL COAST RANGE — Cool, high elevation areas with strong summer sunlight. This zone has limited climate data and the zones selection is somewhat subjective
11. CENTRAL SIERRA NEVADA — Sierra Nevada Mountain valleys east of Sacramento with some influence from the delta breeze in summer
12. EAST SIDE SACRAMENTO-SAN JOAQUIN VALLEY — Low winter and high summer ETo with slightly lower ETo than zone 14
13. NORTHERN SIERRA NEVADA — Northern Sierra Nevada mountain valleys with less marine influence than zone 11
14. MID-CENTRAL VALLEY, SOUTHERN SIERRA NEVADA, TEHACHAPI & HIGH DESERT MOUNTAINS — High summer sunshine and wind in some locations.
15. NORTHERN & SOUTHERN SAN JOAQUIN VALLEY — Slightly lower winter ETo due to fog and slightly higher summer ETo than zones 12 & 14
16. WESTSIDE SAN JOAQUIN VALLEY & MOUNTAINS EAST & WEST OF IMPERIAL VALLEY
17. HIGH DESERT VALLEYS — Valleys in the high desert near Nevada and Arizona
18. IMPERIAL VALLEY, DEATH VALLEY AND PALO VERDE — Low desert areas with high sunlight and considerable heat advection

### Monthly Average Reference Evapotranspiration by ETo Zone (inches/month)

| Zone | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.93 | 1.40 | 2.48 | 3.30 | 4.03 | 4.50 | 4.65 | 4.03 | 3.30 | 2.48 | 1.20 | 0.62 | 33.0 |
| 2 | 1.24 | 1.68 | 3.10 | 3.90 | 4.65 | 5.10 | 4.96 | 4.65 | 3.90 | 2.79 | 1.80 | 1.24 | 39.0 |
| 3 | 1.86 | 2.24 | 3.72 | 4.80 | 5.27 | 5.70 | 5.58 | 5.27 | 4.20 | 3.41 | 2.40 | 1.86 | 46.3 |
| 4 | 1.86 | 2.24 | 3.41 | 4.50 | 5.27 | 5.70 | 5.89 | 5.58 | 4.50 | 3.41 | 2.40 | 1.86 | 46.6 |
| 5 | 0.93 | 1.68 | 2.79 | 4.20 | 5.58 | 6.30 | 6.51 | 5.89 | 4.50 | 3.10 | 1.50 | 0.93 | 43.9 |
| 6 | 1.86 | 2.24 | 3.41 | 4.80 | 5.58 | 6.30 | 6.51 | 6.20 | 4.80 | 3.72 | 2.40 | 1.86 | 49.7 |
| 7 | 0.62 | 1.40 | 2.48 | 3.90 | 5.27 | 6.30 | 7.44 | 6.51 | 4.80 | 2.79 | 1.20 | 0.62 | 43.4 |
| 8 | 1.24 | 1.68 | 3.41 | 4.80 | 6.20 | 6.90 | 7.44 | 6.51 | 5.10 | 3.41 | 1.80 | 0.93 | 49.4 |
| 9 | 2.17 | 2.80 | 4.03 | 5.10 | 5.89 | 6.60 | 7.44 | 6.82 | 5.70 | 4.03 | 2.70 | 1.86 | 55.1 |
| 10 | 0.93 | 1.68 | 3.10 | 4.50 | 5.89 | 7.20 | 8.06 | 7.13 | 5.10 | 3.10 | 1.50 | 0.93 | 49.1 |
| 11 | 1.55 | 2.24 | 3.10 | 4.50 | 5.89 | 7.20 | 8.06 | 7.44 | 5.70 | 3.72 | 2.10 | 1.55 | 53.0 |
| 12 | 1.24 | 1.96 | 3.41 | 5.10 | 6.82 | 7.80 | 8.06 | 7.13 | 5.40 | 3.72 | 1.80 | 0.93 | 53.3 |
| 13 | 1.24 | 1.96 | 3.10 | 4.80 | 6.51 | 7.80 | 8.99 | 7.75 | 5.70 | 3.72 | 1.80 | 0.93 | 54.3 |
| 14 | 1.55 | 2.24 | 3.72 | 5.10 | 6.82 | 7.80 | 8.68 | 7.75 | 5.70 | 4.03 | 2.10 | 1.55 | 57.0 |
| 15 | 1.24 | 2.24 | 3.72 | 5.70 | 7.44 | 8.10 | 8.68 | 7.75 | 5.70 | 4.03 | 2.10 | 1.24 | 57.9 |
| 16 | 1.55 | 2.52 | 4.03 | 5.70 | 7.75 | 8.70 | 9.30 | 8.37 | 6.30 | 4.34 | 2.40 | 1.55 | 62.5 |
| 17 | 1.86 | 2.80 | 4.65 | 6.00 | 8.06 | 9.00 | 9.92 | 8.68 | 6.60 | 4.34 | 2.70 | 1.86 | 66.5 |
| 18 | 2.48 | 3.36 | 5.27 | 6.90 | 8.68 | 9.60 | 9.61 | 8.68 | 6.90 | 4.96 | 3.00 | 2.17 | 71.6 |

Variablity between stations within single zones is as high as 0.02 inches per day for zone 1 and during winter months in zone 13. The average standard deviation of the ETo between estimation sites within a zone for all months is about 0.01 inches per day for all 200 sites.

California Irrigation Management Information System (CIMIS)

# REFERENCE EVAPOTRANSPIRATION

Scale 1:1,805,000
One Centimeter Represents Approximately 18 Kilometers

STATE OF CALIFORNIA
GRAY DAVIS GOVERNOR
THOMAS M. HANNIGAN, DIRECTOR, DEPARTMENT OF WATER RESOURCES

Lambert Conformal Conic Projection
1927 North American Datum

Developed as a cooperative project between the

Department of Land, Air and Water Resources
University of California, Davis
And
Water Use Efficiency Office
California Department of Water Resources
Baryohay Davidoff, California Irrigation Management Unit

Map Prepared by David W. Jones 1999
Data developed by Richard L. Snyder, Simon Eching, and Helena Gomez-MacPherson
Background Data from Teale and USGS Sources