

Appendix D Materials

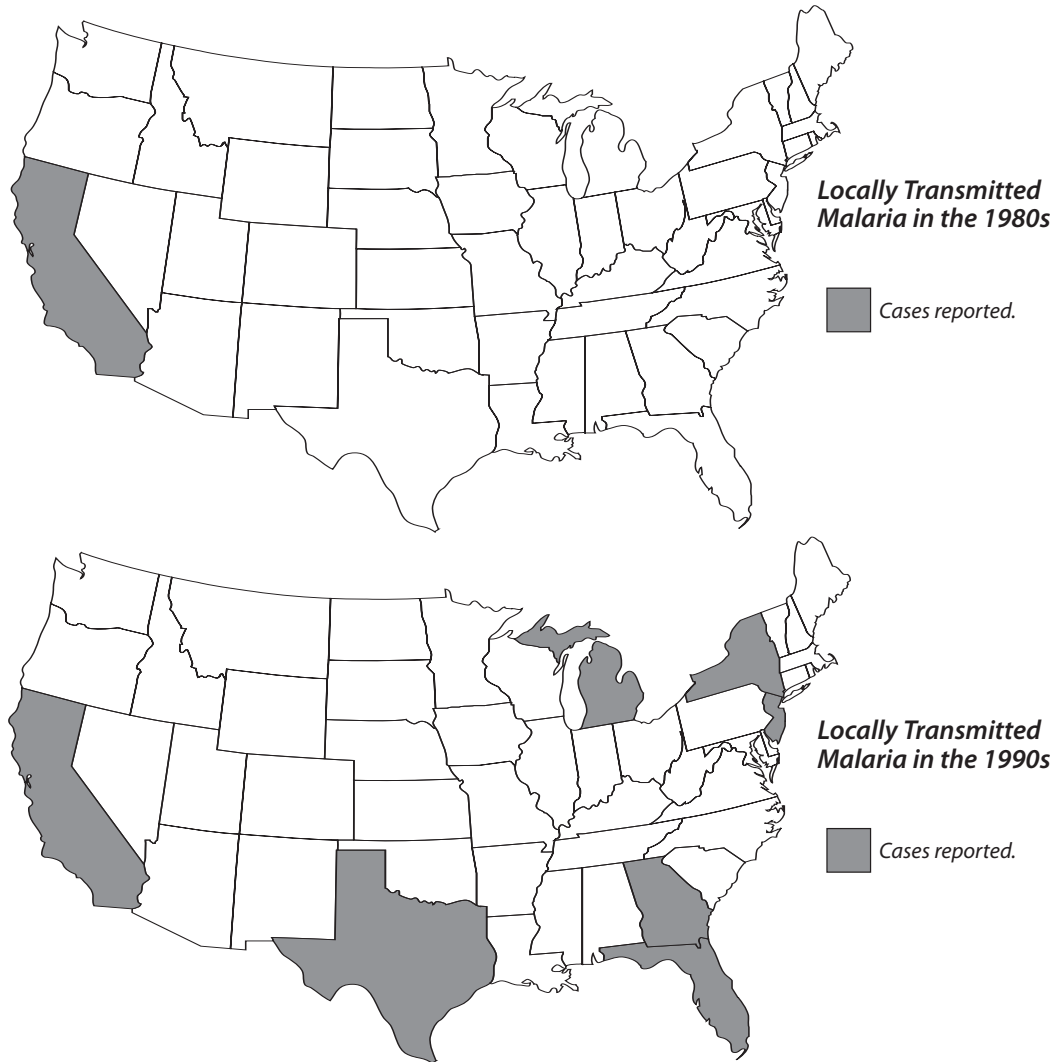
Map of the Caribbean



Malaria

Malaria is an infectious disease that occurred in the U.S. earlier in the 20th century, but became almost non-existent in this country except for imported cases. It is sometimes difficult to determine whether a case was imported or

locally transmitted. Cases reported in all of the states marked in the accompanying maps, however, are believed, after extensive investigation, to have been locally transmitted.



Centers for Disease Control and Prevention. Local transmission of *Plasmodium vivax* malaria—Houston, Texas, 1994. *Morbidity and Mortality Weekly Report* 1995; 4 4: 295–303.

Centers for Disease Control and Prevention. Mosquito-transmitted malaria—Michigan, 1995. *Morbidity and Mortality Weekly Report* 1996; 4 5: 398–400.

Centers for Disease Control and Prevention. Probable locally acquired mosquito-transmitted *Plasmodium vivax* infection—Georgia, 1996. *Morbidity and Mortality Weekly Report* 1997; 4 6: 264–267.

Zucker, JR. Changing patterns of autochthonous malaria transmission in the United States: a review of recent outbreaks. *Emerging Infectious Disease* 1996; 2 (1).

Minimum Temperature Data for Locations Near the Limits of Malaria Range

The data provided in the following tables are derived from *The Global Historical Climatology Network (GHCN)*, version 2 beta.

■ SOUTHWEST U.S.

Brownsville/Int'l Arpt

Located at *about* 25.90°N 97.43°W. Height *about* 6m/19 feet above sea level.

AVERAGE MINIMUM TEMPERATURE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
°C	10.4	11.9	15.2	19.0	21.9	23.8	24.2	24.1	22.8	19.0	14.7	11.6	18.2
°F	50.7	53.4	59.4	66.2	71.4	74.8	75.6	75.4	73.0	66.2	58.5	52.9	64.8

Source: Derived from *GHCN 2 Beta*. 552 months between 1948 and 1993.

Corpus Christi/NAS

Located at *about* 27.68°N 97.28°W. Height *about* 6m/19 feet above sea level.

AVERAGE MINIMUM TEMPERATURE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
°C	9.9	11.7	15.2	19.4	22.9	25.5	26.1	26.1	24.8	21.0	15.8	11.8	19.2
°F	49.8	53.1	59.4	66.9	73.2	77.9	79.2	79.0	76.6	69.8	60.4	53.2	66.6

Source: Derived from *GHCN 2 Beta*. 547 months between 1945 and 1991.

Galveston/Scholes Field

Located at *about* 29.27°N 94.87°W. Height *about* 8m/26 feet above sea level.

AVERAGE MINIMUM TEMPERATURE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
°C	8.7	10.5	13.1	17.5	21.9	24.9	26.0	25.6	23.8	19.8	13.2	10.4	18.1
°F	47.7	50.9	55.6	63.5	71.4	76.8	78.8	78.1	74.8	67.6	55.8	50.7	64.6

Source: Derived from *GHCN 2 Beta*. 203 months between 1946 and 1963.

San Diego/Lindbergh Field

Located at *about* 32.72°N 117.17°W. Height *about* 10m/32 feet above sea level.

AVERAGE MINIMUM TEMPERATURE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
°C	9.0	10.0	11.1	12.9	14.7	16.3	18.4	19.1	18.2	15.6	11.8	9.1	13.9
°F	48.2	50.0	52.0	55.2	58.5	61.3	65.1	66.4	64.8	60.1	53.2	48.4	57.0

Source: Derived from *GHCN 2 Beta*. 549 months between 1948 and 1993.

Tucson/Int'l Arpt

Located at *about* 32.13°N 110.93°W. Height *about* 786m/2578 feet above sea level.

AVERAGE MINIMUM TEMPERATURE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
°C	3.6	4.8	6.8	10.3	14.4	19.7	23.0	22.2	19.6	13.7	7.2	3.9	12.4
°F	38.5	40.6	44.2	50.5	57.9	67.5	73.4	72.0	67.3	56.7	45.0	39.0	54.3

Source: Derived from *GHCN 2 Beta*. 546 months between 1946 and 1993.

■ SOUTHEAST U.S.**Daytona Beach/WSO AP**

Located at *about* 29.18°N 81.05°W. Height *about* 8m/26 feet above sea level.

AVERAGE MINIMUM TEMPERATURE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
°C	8.5	9.5	11.9	14.7	18.2	21.3	22.4	22.5	22.1	18.4	13.3	9.7	16.0
°F	47.3	49.1	53.4	58.5	64.8	70.3	72.3	72.5	71.8	65.1	55.9	49.5	60.8

Source: Derived from *GHCN 2 Beta*. 551 months between 1948 and 1993.

Homestead/AFB

Located at *about* 25.48°N 80.38°W. Height *about* 5m/16 feet above sea level.

AVERAGE MINIMUM TEMPERATURE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
°C	14.8	15.2	17.1	19.9	21.8	23.6	24.5	24.5	24.2	22.0	18.4	15.3	20.1
°F	58.6	59.4	62.8	67.8	71.2	74.5	76.1	76.1	75.6	71.6	65.1	59.5	68.2

Source: Derived from *GHCN 2 Beta*. 172 months between 1956 and 1970.

Jacksonville/Cecil Fld NAS

Located at *about* 30.22°N 81.88°W. Height *about* 27m/88 feet above sea level.

AVERAGE MINIMUM TEMPERATURE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
°C	6.0	7.3	10.4	14.0	17.7	21.0	22.3	22.2	21.0	16.0	10.7	7.2	14.8
°F	42.8	45.1	50.7	57.2	63.9	69.8	72.1	72.0	69.8	60.8	51.3	45.0	58.6

Source: Derived from *GHCN 2 Beta*. 458 months between 1947 and 1991.

Key West/NAS

Located at *about* 24.58°N 81.68°W. Height *about* 7m/22 feet above sea level.

AVERAGE MINIMUM TEMPERATURE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
°C	20.8	21.1	22.9	25.1	26.7	28.2	28.9	28.9	28.3	26.5	24.0	21.6	25.2
°F	69.4	70.0	73.2	77.2	80.1	82.8	84.0	84.0	82.9	79.7	75.2	70.9	77.4

Source: Derived from *GHCN 2 Beta*. 471 months between 1945 and 1991.

Miami/WSO City

Located at *about* 25.72°N 80.28°W. Height *about* 4m/13 feet above sea level.

AVERAGE MINIMUM TEMPERATURE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
°C	17.1	16.9	19.2	21.2	23.2	24.6	25.6	25.7	25.2	23.4	20.8	18.1	21.7
°F	62.8	62.4	66.6	70.2	73.8	76.3	78.1	78.3	77.4	74.1	69.4	64.6	71.1

Source: Derived from *GHCN 2 Beta*. 364 months between 1962 and 1993.

New Orleans/Int'l Arpt

Located at *about* 29.98°N 90.25°W. Height *about* 6m/19 feet above sea level.

AVERAGE MINIMUM TEMPERATURE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
°C	6.2	7.6	11.0	14.7	18.6	21.7	23.0	22.8	21.0	15.2	10.2	7.4	14.9
°F	43.2	45.7	51.8	58.5	65.5	71.1	73.4	73.0	69.8	59.4	50.4	45.3	58.8

Source: Derived from *GHCN 2 Beta*. 552 months between 1948 and 1993.

St. Louis/Lambert Int'l Arpt

Located at *about* 38.75°N 90.37°W. Height *about* 172m/564 feet above sea level.

AVERAGE MINIMUM TEMPERATURE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
°C	-5.9	-3.6	1.2	7.6	12.9	18.3	20.7	19.6	15.1	8.7	2.2	-3.1	7.8
°F	21.4	25.5	34.2	45.7	55.2	64.9	69.3	67.3	59.2	47.7	36.0	26.4	46.0

Source: Derived from *GHCN 2 Beta*. 577 months between 1945 and 1993.

Tampa/Int'l Arpt

Located at *about* 27.97°N 82.53°W. Height *about* 12m/39 feet above sea level.

AVERAGE MINIMUM TEMPERATURE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
°C	10.0	10.9	13.5	16.0	19.5	22.5	23.4	23.5	22.6	18.6	14.0	10.9	17.1
°F	50.0	51.6	56.3	60.8	67.1	72.5	74.1	74.3	72.7	65.5	57.2	51.6	62.8

Source: Derived from *GHCN 2 Beta*. 550 months between 1948 and 1993.

West Palm Beach/Int'l Arpt

Located at *about* 26.68°N 80.12°W. Height *about* 7m/22 feet above sea level.

AVERAGE MINIMUM TEMPERATURE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
°C	13.8	14.2	16.2	18.4	21.0	22.8	23.6	23.8	23.5	21.4	17.9	14.9	19.3
°F	56.8	57.6	61.2	65.1	69.8	73.0	74.5	74.8	74.3	70.5	64.2	58.8	66.7

Source: Derived from *GHCN 2 Beta*. 547 months between 1948 and 1993.

■ MEXICO

Jalapa, Ver. Mexico

Located at *about* 19.53°N 96.92°W. Height *about* 1427m/4681 feet above sea level.

AVERAGE MINIMUM TEMPERATURE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
°C	14.6	15.5	17.7	20.3	20.6	20.1	19.3	19.8	19.3	18.0	16.4	15.4	18.1
°F	58.3	59.9	63.9	68.5	69.1	68.2	66.7	67.6	66.7	64.4	61.5	59.7	64.6

Source: Derived from *GHCN 2 Beta*. 241 months between 1951 and 1981.

Tampico, Tamps

Located at *about* 22.22°N 97.85°W. Height *about* 9m/29 feet above sea level.

AVERAGE MINIMUM TEMPERATURE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
°C	21.3	21.8	23.3	25.6	27.3	27.5	27.3	28.0	27.5	26.5	24.4	22.5	25.3
°F	70.3	71.2	73.9	78.1	81.1	81.5	81.1	82.4	81.5	79.7	75.9	72.5	77.5

Source: Derived from *GHCN 2 Beta*. 430 months between 1951 and 1990.

Veracruz, Ver. Mexico

Located at *about* 19.14°N 96.10°W. Height *about* 16m/52 feet above sea level.

AVERAGE MINIMUM TEMPERATURE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
°C	21.3	21.8	23.3	25.6	27.3	27.5	27.3	28.0	27.5	26.5	24.4	22.5	25.3
°F	70.3	71.2	73.9	78.1	81.1	81.5	81.1	82.4	81.5	79.7	75.9	72.5	77.5

Source: Derived from *GHCN 2 Beta*. 430 months between 1951 and 1990.

■ CARIBBEAN ISLANDS

Guantanamo Bay

Located at *about* 19.89°N 75.15°W. Height *about* 16m/52 feet above sea level.

AVERAGE MINIMUM TEMPERATURE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
°C	20.1	20.1	21.0	22.0	23.3	24.1	24.4	24.4	24.2	23.7	22.4	20.9	22.6
°F	68.2	68.2	69.8	71.6	73.9	75.4	75.9	75.9	75.6	74.7	72.3	69.6	72.7

Source: Derived from *GHCN 2 Beta*. 527 months between 1945 and 1991.

Kingston/Norman Manle, Jamaica

Located at *about* 17.93°N 76.70°W. Height *about* 3m/9 feet above sea level.

AVERAGE MINIMUM TEMPERATURE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
°C	25.6	25.5	25.9	26.6	27.3	28.0	28.4	28.1	27.9	27.4	26.8	26.2	27.0
°F	78.1	77.9	78.6	79.9	81.1	82.4	83.1	82.6	82.2	81.3	80.2	79.2	80.6

Source: Derived from *GHCN 2 Beta*. 1639 months between 1852 and 1990.

Nassau/Int'l Arpt

Located at *about* 25.10°N 77.50°W. Height *about* 10m/32 feet above sea level.

AVERAGE MINIMUM TEMPERATURE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
°C	21.5	21.6	22.5	23.8	25.4	27.0	27.9	28.0	27.5	26.1	24.0	22.3	24.8
°F	70.7	70.9	72.5	74.8	77.7	80.6	82.2	82.4	81.5	79.0	75.2	72.1	76.6

Source: Derived from *GHCN 2 Beta*. 1464 months between 1855 and 1991.

San Juan/Isla Verde Int'l Arpt

Located at *about* 18.43°N 66.00°W. Height *about* 2m/6 feet above sea level.

AVERAGE MINIMUM TEMPERATURE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
°C	21.3	21.2	21.8	22.5	23.4	24.2	24.6	24.6	24.3	23.9	23.1	22.1	23.1
°F	70.3	70.2	71.2	72.5	74.1	75.6	76.3	76.3	75.7	75.0	73.6	71.8	73.6

Source: Derived from *GHCN 2 Beta*. 462 months between 1955 and 1993.