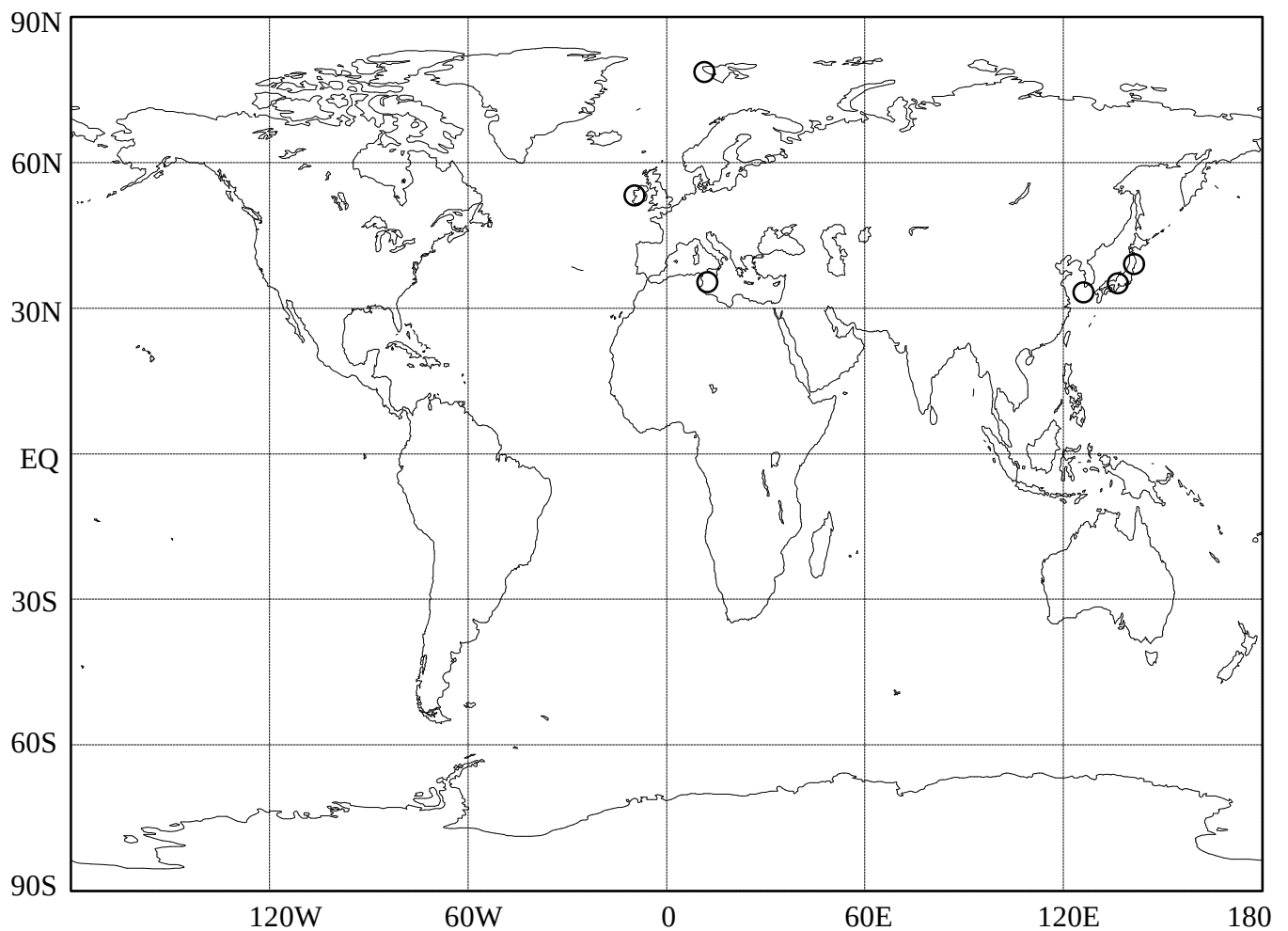


5. Nitrous Oxide (N₂O)

○ : *IN SITU* STATION



5. Nitrous Oxide (N₂O)

Nitrous oxide is a greenhouse gas with a long lifetime of about 120 years. Global average concentrations increased steadily from about 275 ppb in pre-industrial times to 299 ppb in 1976 and 311 to 312 ppb in 1996 (WMO, 1999a).

Nitrous oxide is emitted into the atmosphere from natural and anthropogenic sources including the oceans, soil, combustion of fuels, biomass burning, use of fertilizer, catalytic converters for automobiles, and various industrial processes. It is removed from the atmosphere mainly by photodissociation in the stratosphere.

Observation sites for nitrous oxide are shown in the location map at the head of this chapter. The time series of monthly mean concentrations are plotted for some of the reporting stations in Figure 5.1. Observation data with a large variability is not shown in this figure. The concentrations at Mace Head increased slightly from 1987 to 1989 at about 0.7-0.8 ppb/year. A slight increase is also seen at Ryori in the 1990s.

The average growth rate of N₂O during the 1980s was 0.7 to 0.8 ppb/year. More recently, the growth rate of N₂O concentrations decreased from about 1 ppb/year in 1991 to 0.5 ppb/year in 1993. However, that rate increased again by 1995 to 0.6 ppb/year (WMO, 1999a). The trend seen in Figure 5.1 is consistent with this description.

Fig. 5.1 Time series of monthly mean concentrations of N₂O.

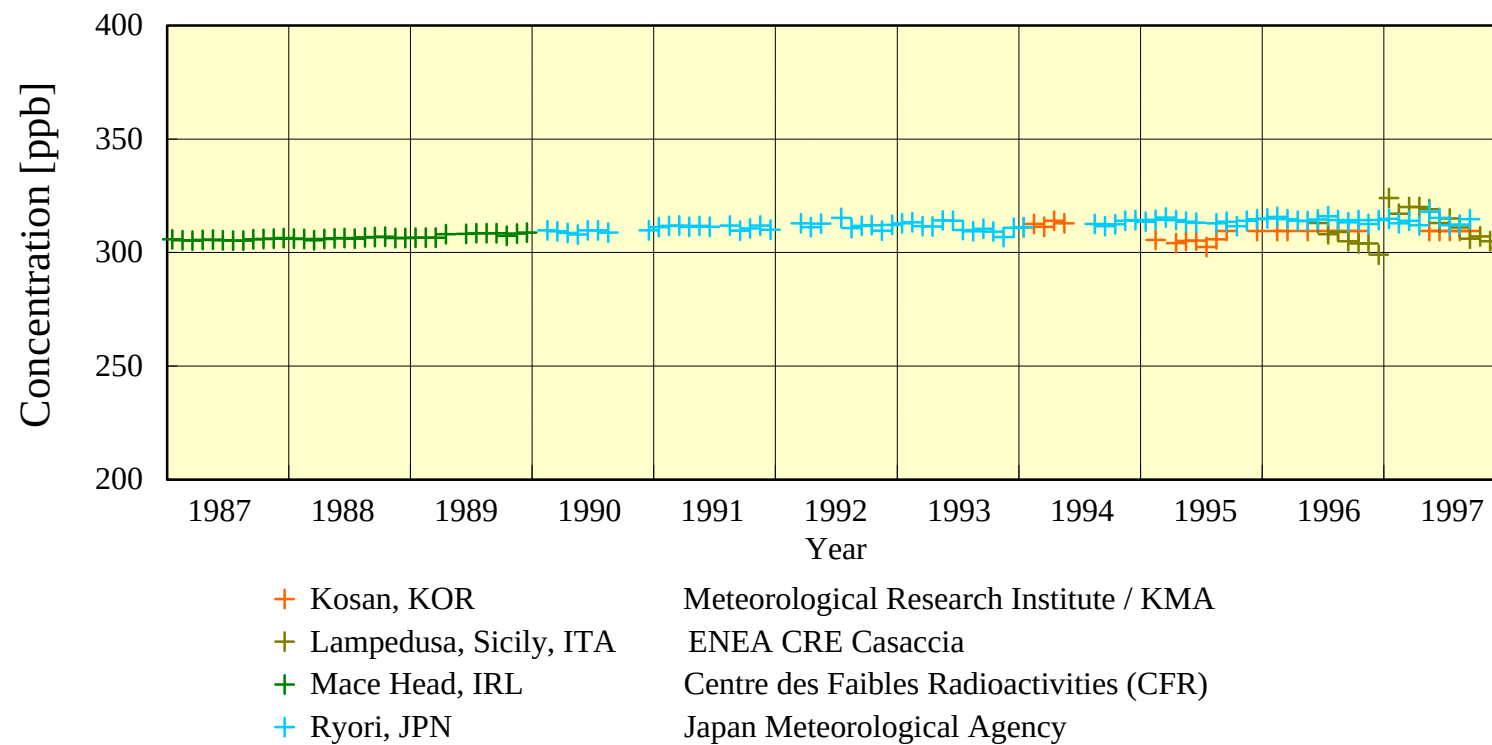


Fig.5.1 Time series of monthly mean concentrations of N_2O .