Because of its impact on the climate, water vapour is a very important constituent in the atmosphere. In this study we analyse integrated total columns measured at Observatoire de haute-Provence, obtained using ground-based as well as satellite observations from 1990 until 2009. H2O measurements made by TELLODIE and SAOZ ground-based instruments, and SCHIAMACHY and GOME space experiments are compared using common statistical methods. Monthly as well as yearly means are analysed in order to sort out variability and its confidence level, extrapolated from the intercomparison. Analysis of affecting effects on measurements is also analysed and mediterranean surrounding locations is then analysed and discussed.