

From ICOADS draft document R2.5dupelim1980 (27 May 2009)

Compute a missing dew point temperature if WBT and AT are extant; if SLP is missing 1015.0 is used as SLP. This rule is not applied if WBT is greater than AT. Constants ACON and BCON are set for computation of DPT relative to water: ACON=7.5 and BCON=237.3. The following Fortran code is then used to attempt computation of DPT:

```
ESW = 6.1078*10.**(WBT*ACON/(WBT+BCON))
E = ESW-(.00066*SLP)*(((.00115*WBT)+1)*(AT-WBT))
IF(E.LT.0.) RETURN
CCON = ALOG10(E/6.1078)
DPT = BCON*CCON/(ACON-CCON)
```

where the RETURN if vapor pressure (E) is less than zero leads to an error diagnostic, and otherwise the resulting DPT is rounded to the nearest 0.1°C. To indicate that this calculation has taken place during preconditioning, we set DPTI=1.