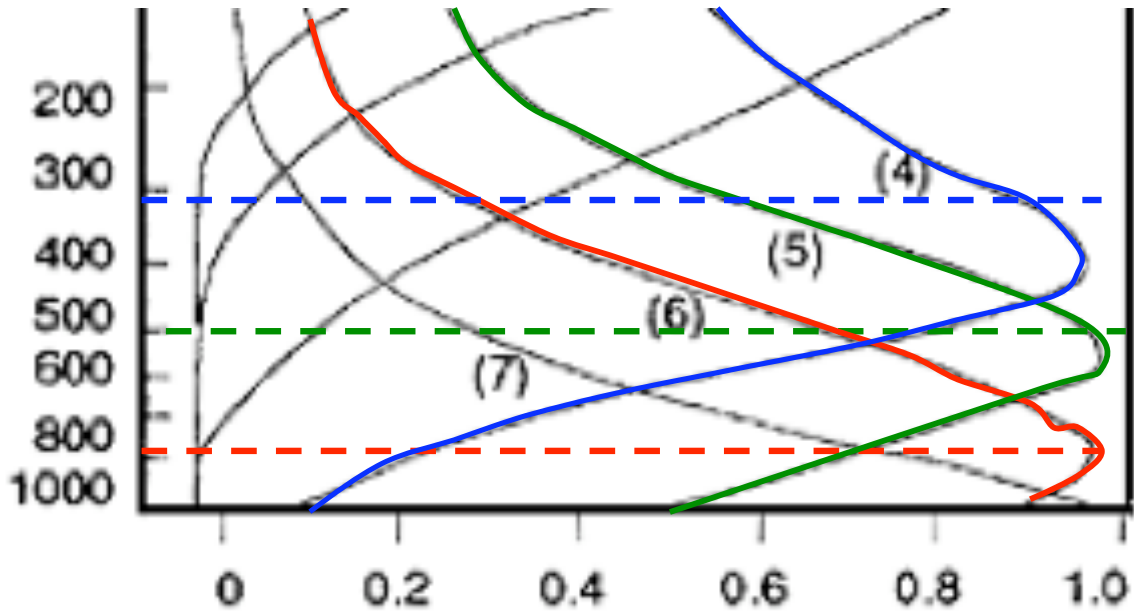
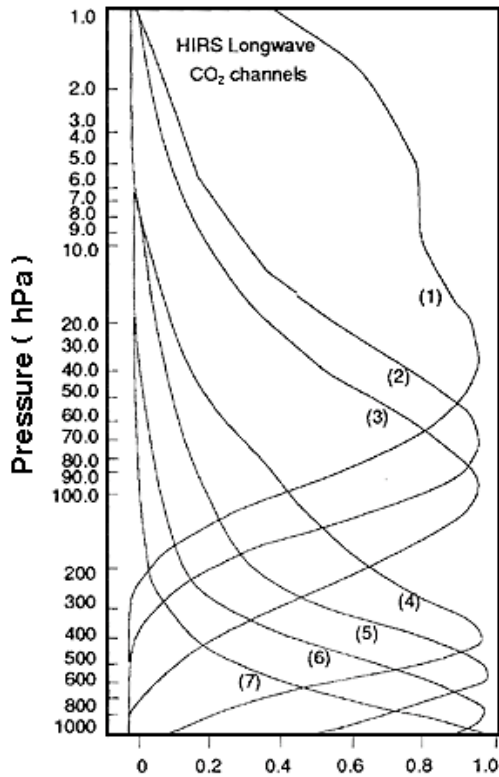


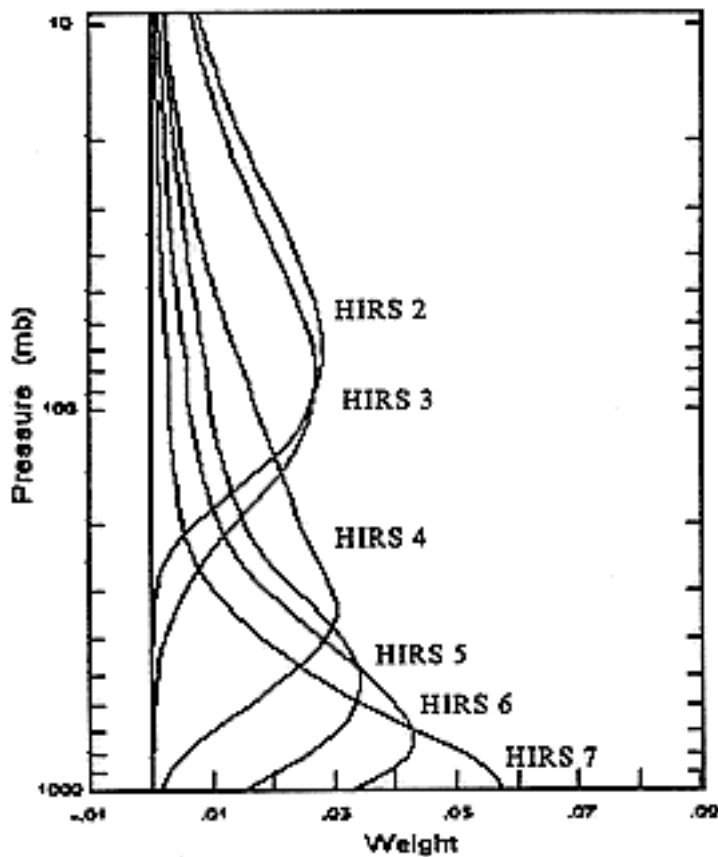
## Weighting Function Figures for TOVS - HIRS



from: <http://ceos.cnes.fr:8100/cdrom00/ceos1/science/dg/dg21.htm>

- Black – Channel 7 gives surface measurements
- Red - Channel 6 gives ~850 mb
- Green – Channel 5 gives ~500 mb
- Blue - Channel 4 gives ~300 m

The troposphere has been enlarged and colored lines added to emphasize how each channel (weighting function) maximum somewhat corresponds to the atmospheric levels used in Myers and Waliser (2003) that display specific humidity anomalies, i.e. surface, 850, 700, 500, and 300 mb. The 700 mb specific humidity anomalies, I'm assuming, must be a combination of channels 5 and 6 (see above). Another powerful result of the above figure is that layer-averaged heating rates may be derived from infrared radiances, which correspond roughly to the weighting functions they are associated with. The above link provides a nice, more detailed explanation of the weighting function and temperature calculations. I'd also refer you to Petty 8.3.2 or you can come talk to me and we can fight over weighting functions!



An alternative figure showing the HIRS weighting functions, from Goldberg and McMillin 1999 (J of Climate).