

Measurement and analysis of mixed phase clouds

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Cloud particles



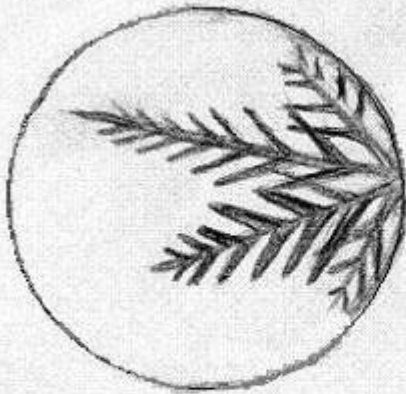
10 μm



10 μm

100 μm

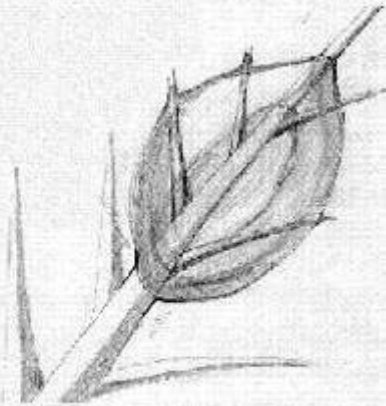
Mixed phase particles



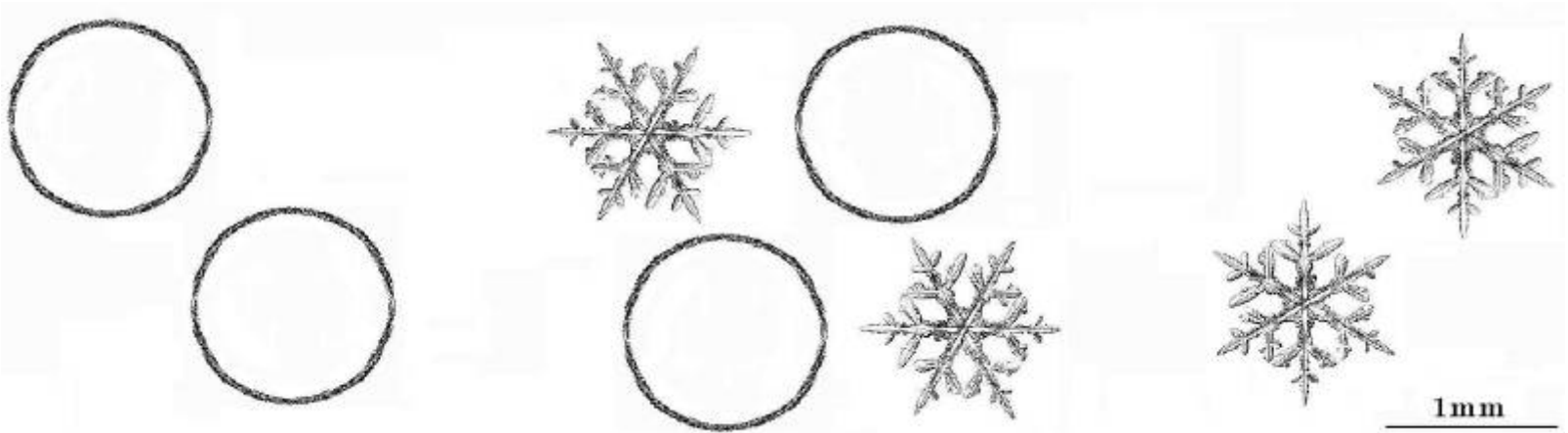
Freezing droplet



melting ice crystals



Precipitation

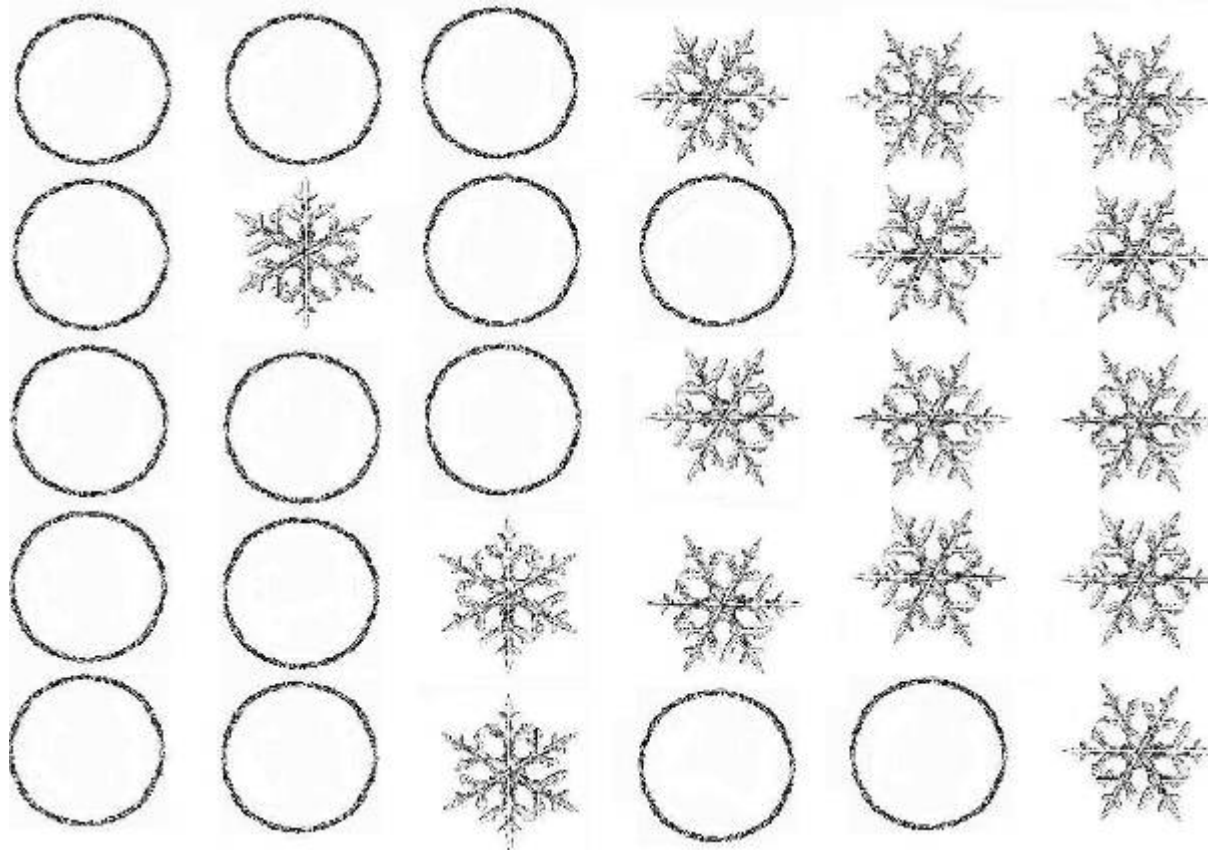


all liquid

mixed phase

all ice

**All
water**



**All
ice**

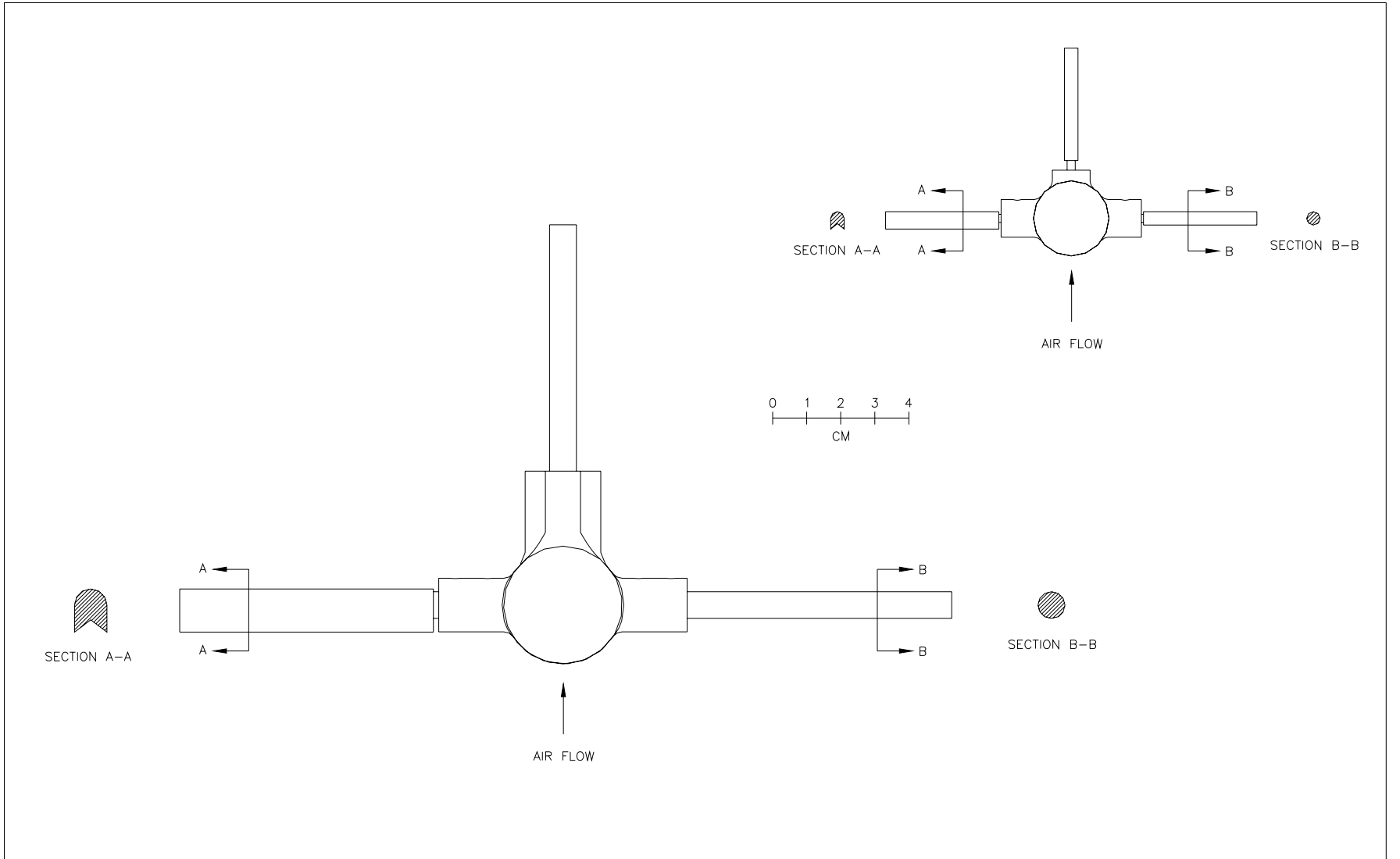
Mixed phase cloud

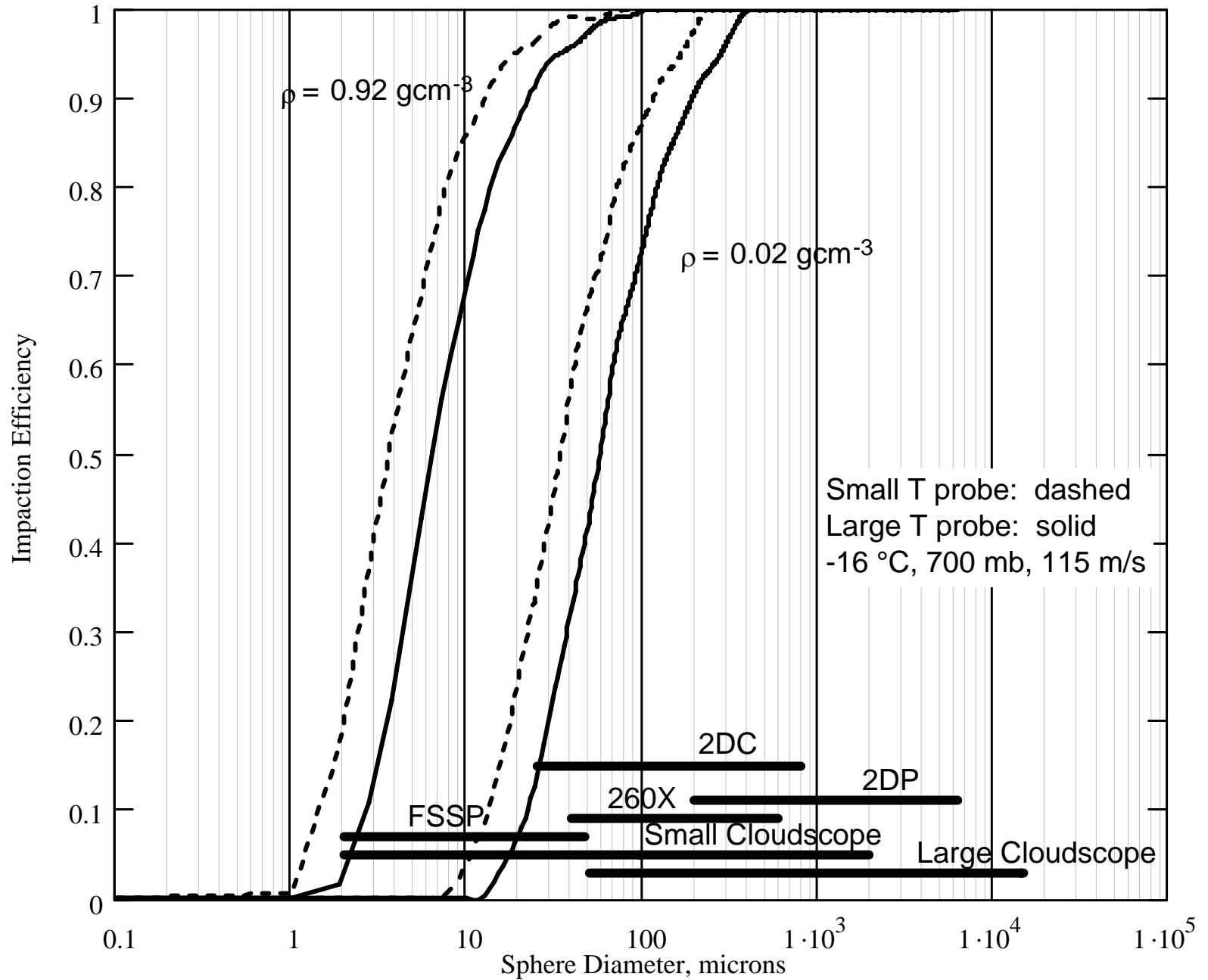
Large T probe

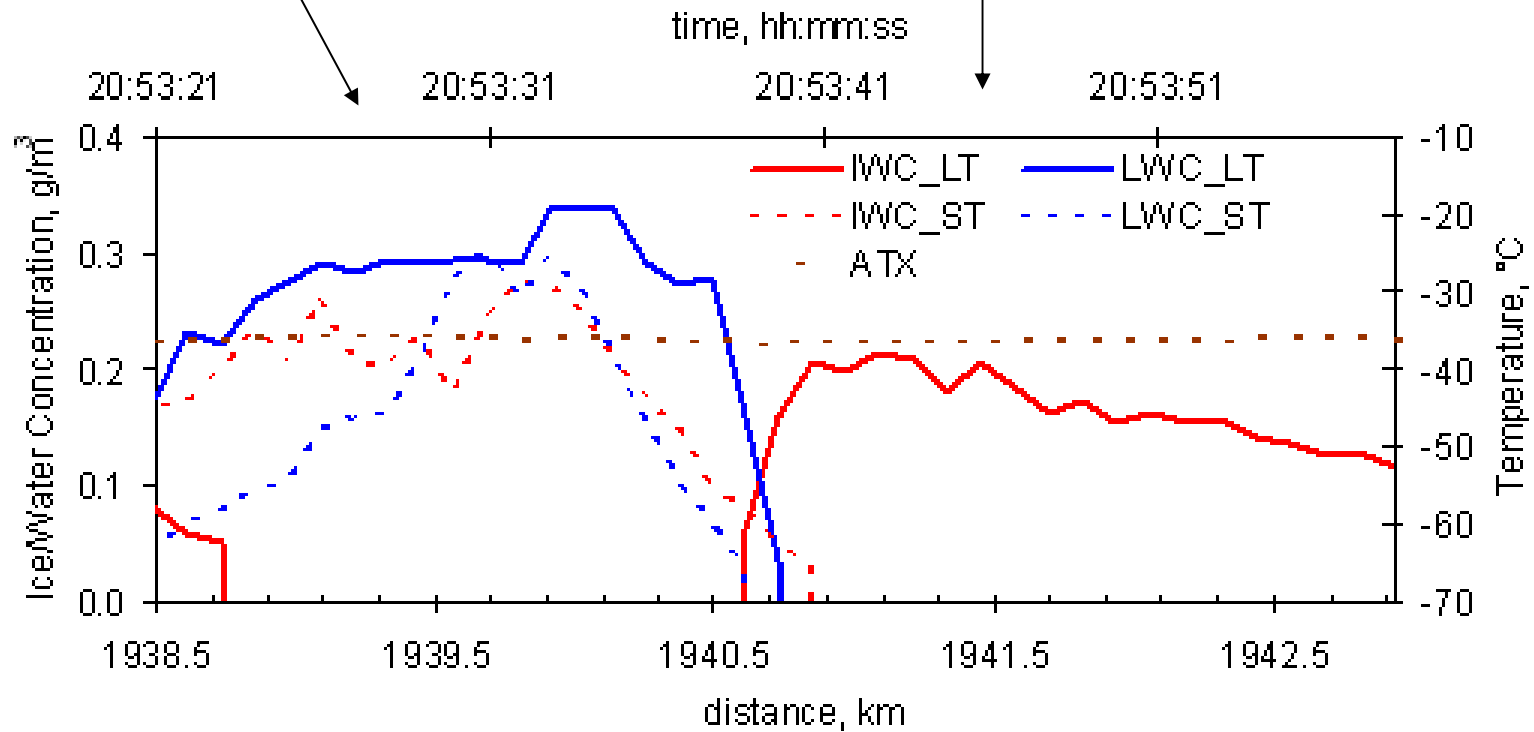


Small T probe



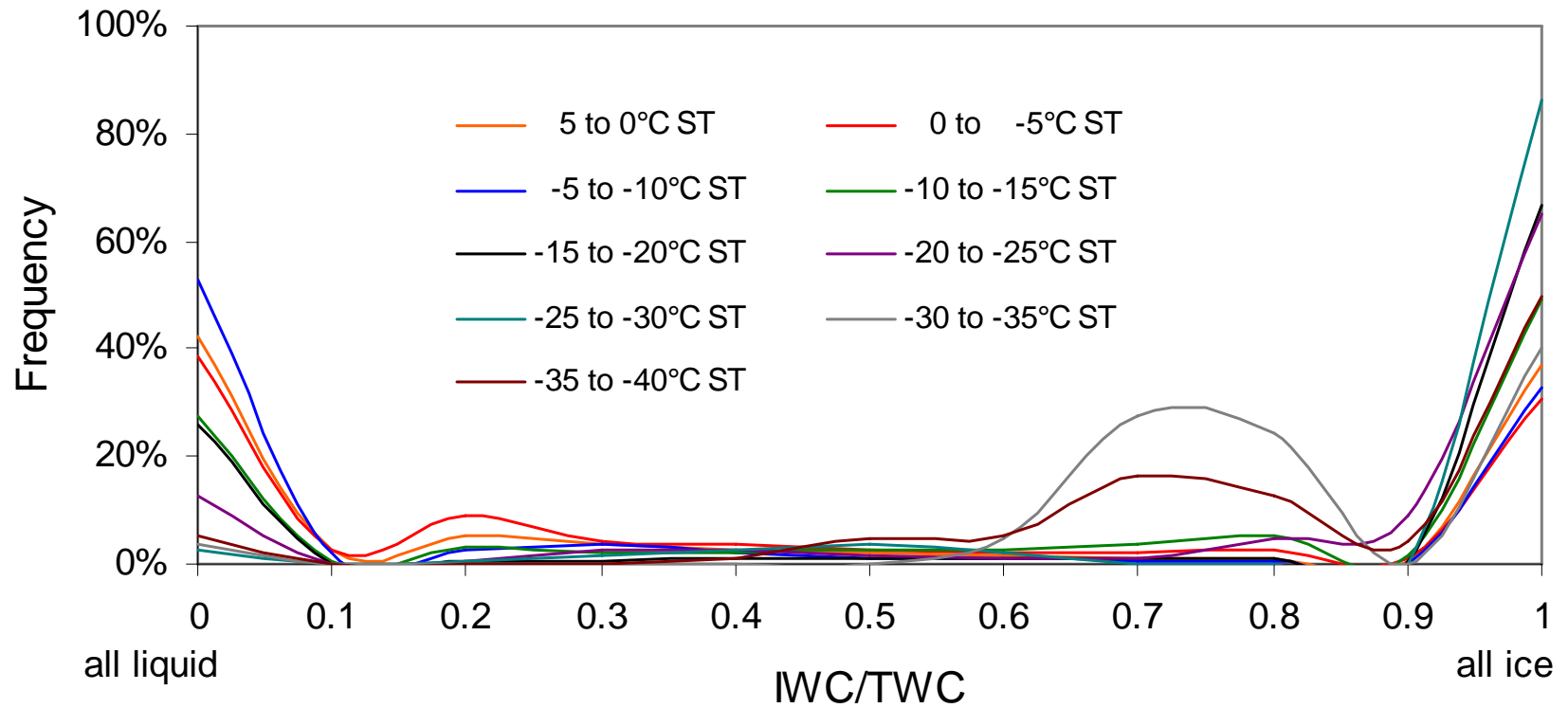


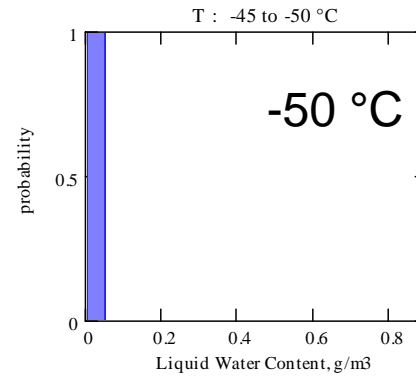
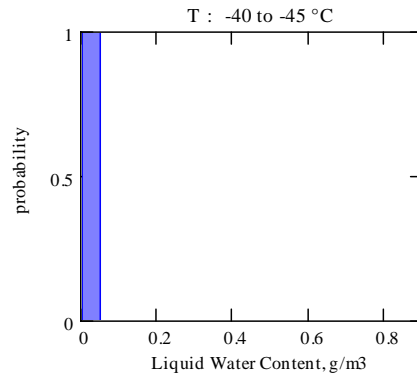
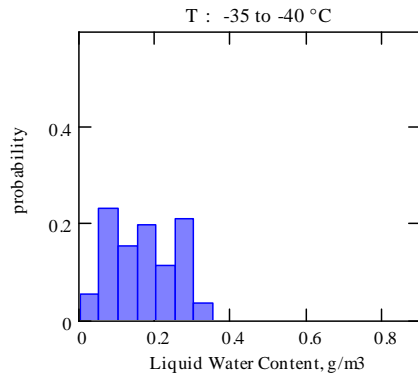
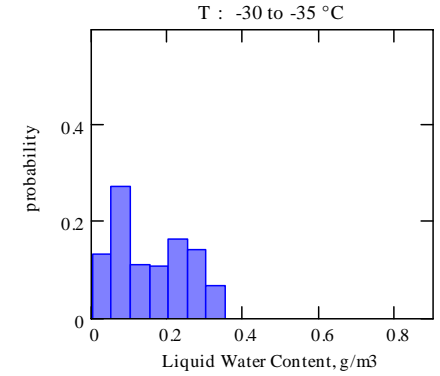
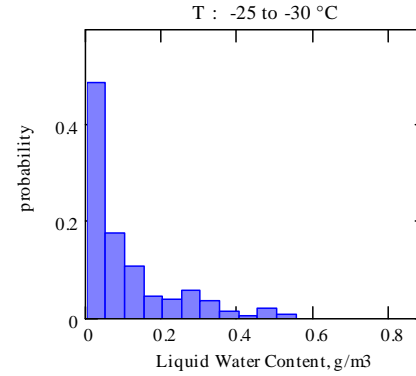
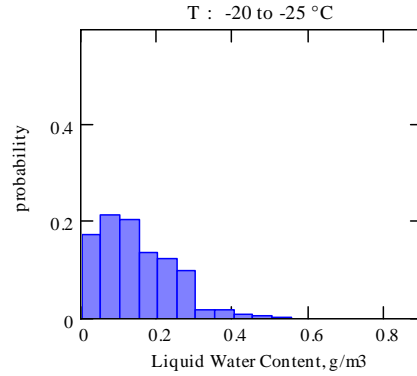
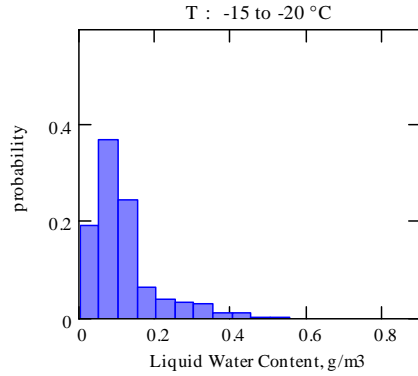
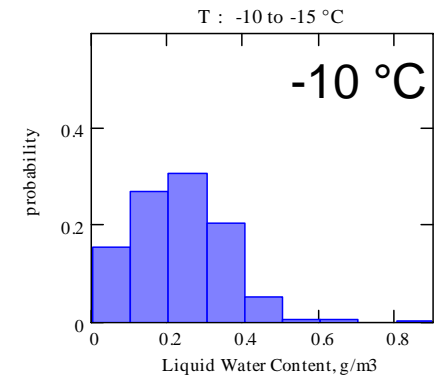
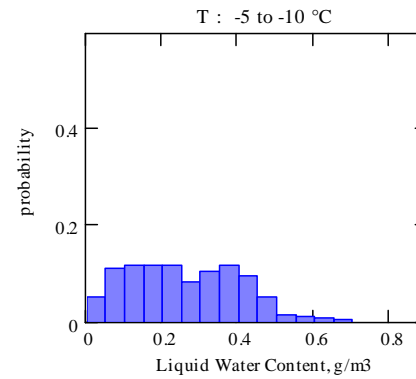
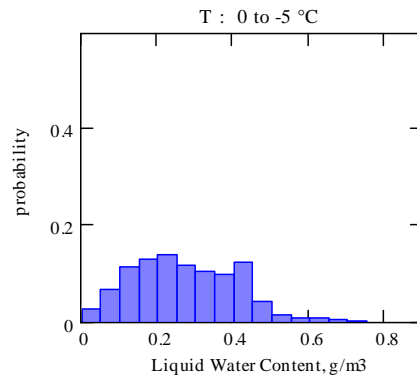
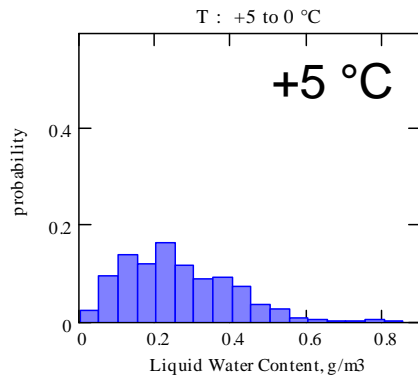




AIRS II 109f12 Mon_Z, Dec 1 2003

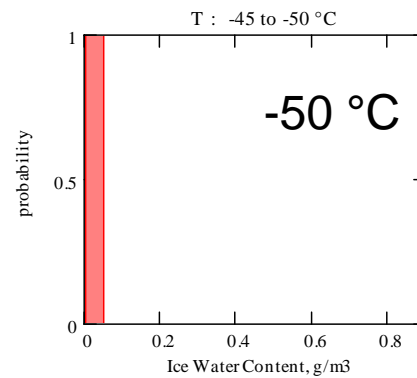
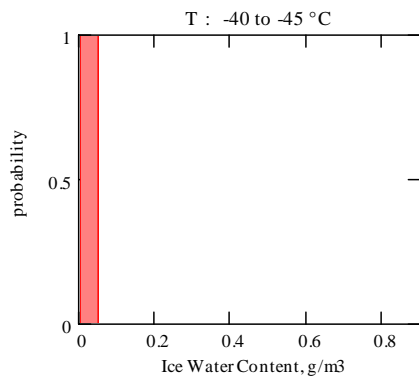
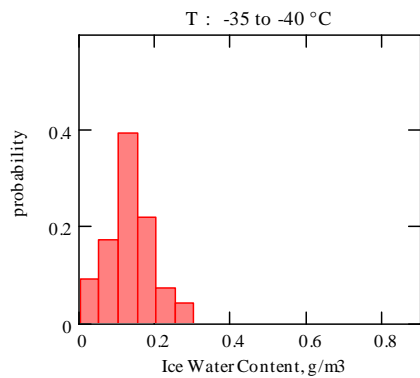
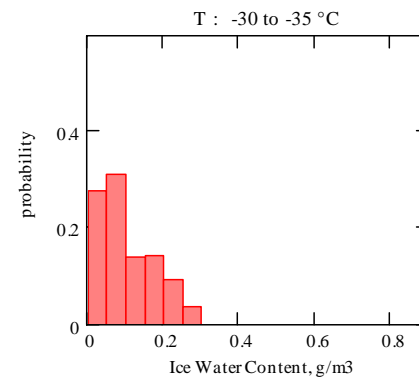
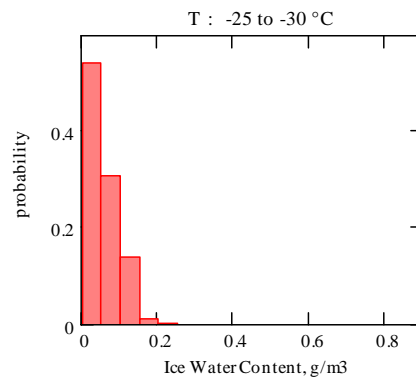
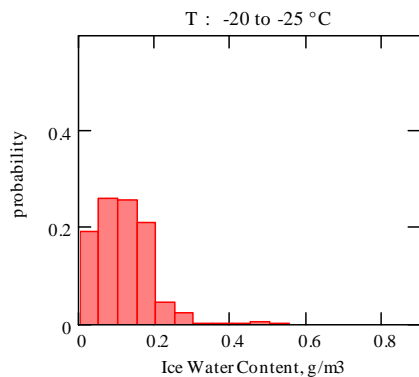
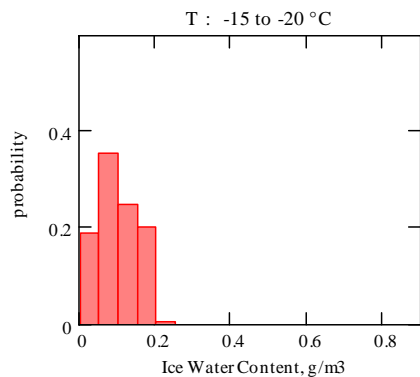
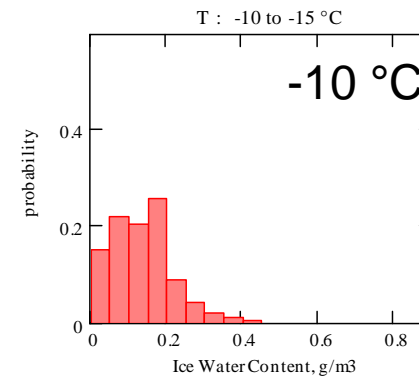
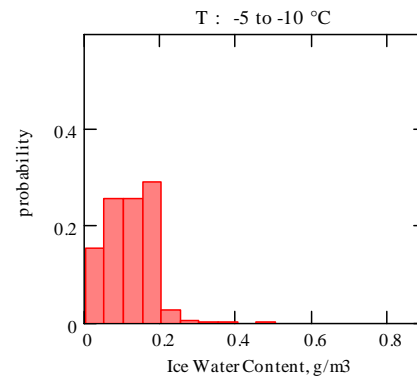
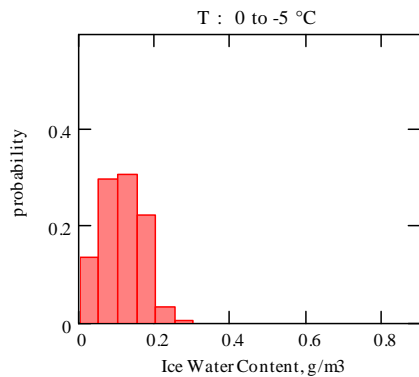
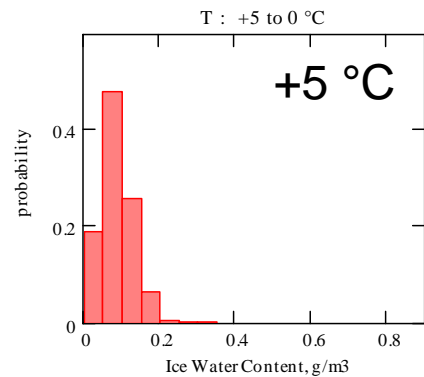
Small T probe Mixed Phase observations during AIRS II campaign





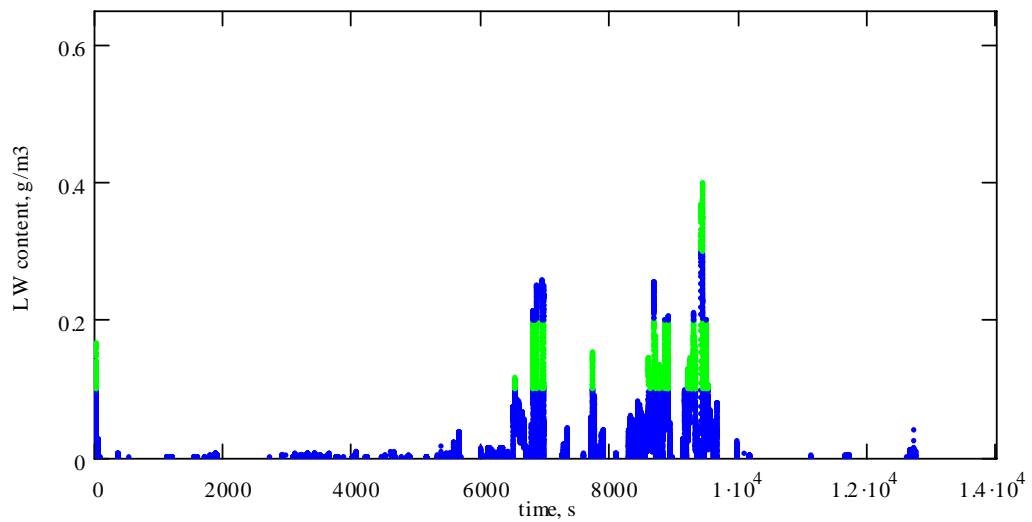
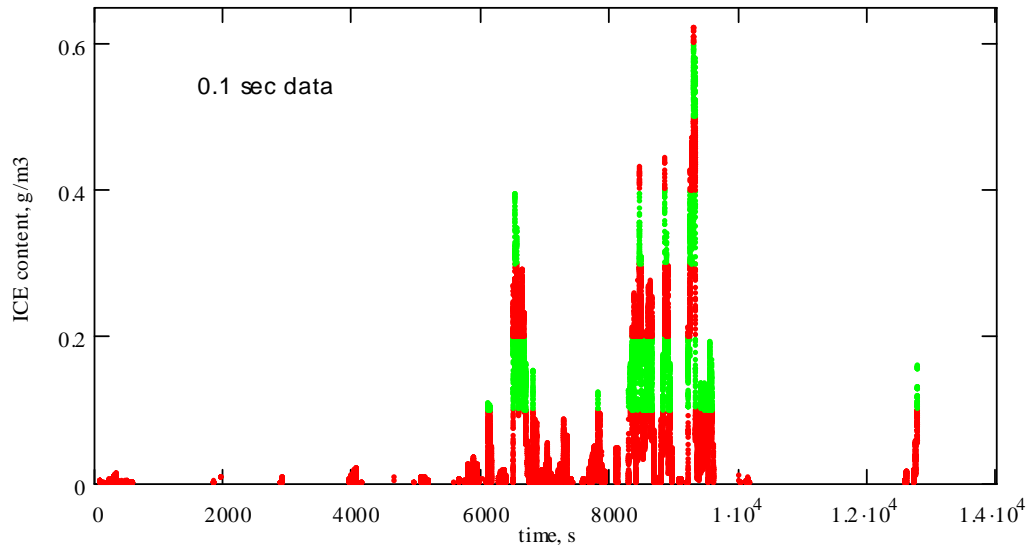
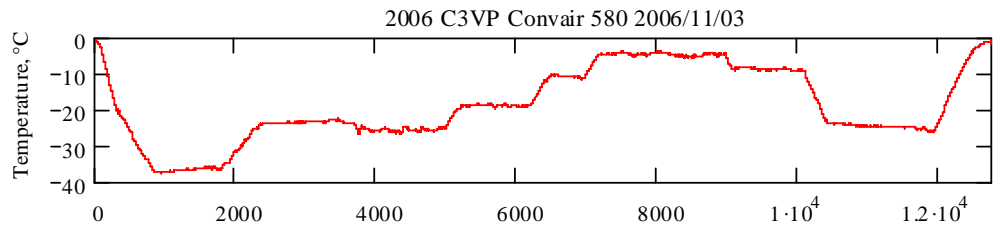
Probability of finding a specific Liquid Water Content.

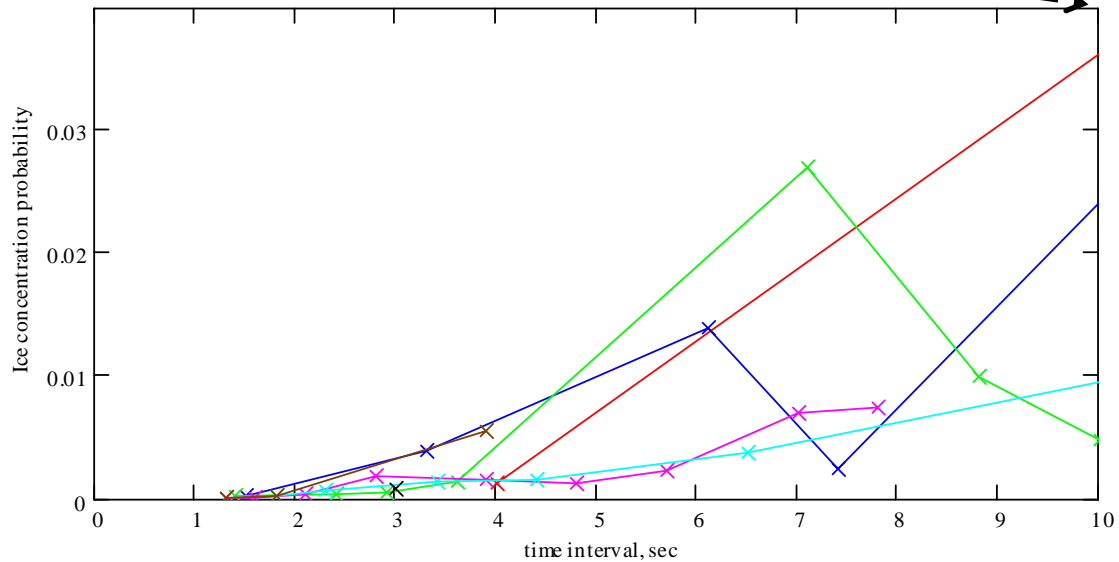
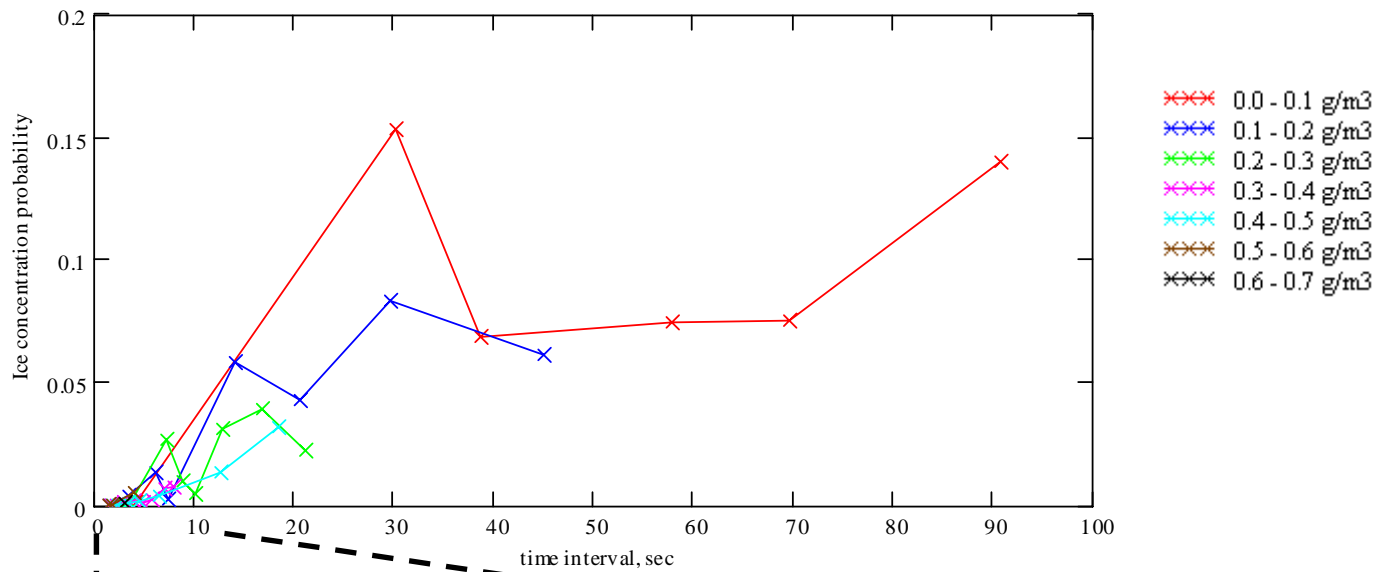
AIRS II cloud event data was classified according to temperature for combined Small and Large T probe data



Probability of finding a specific Ice Water Content.

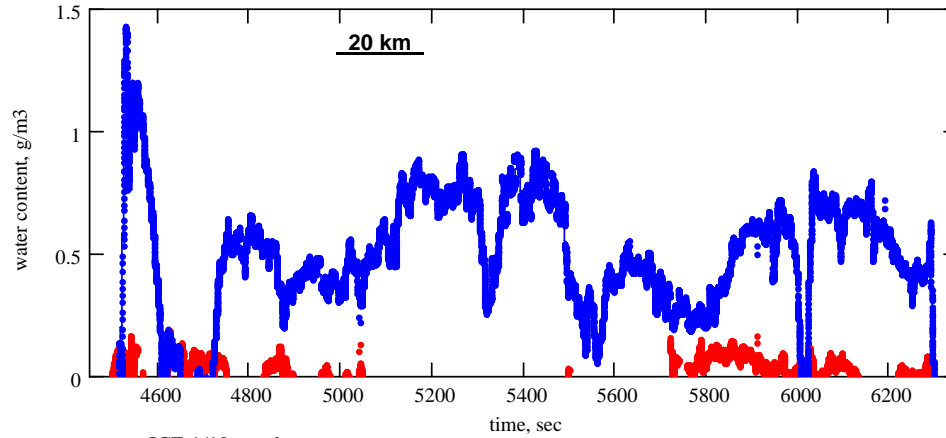
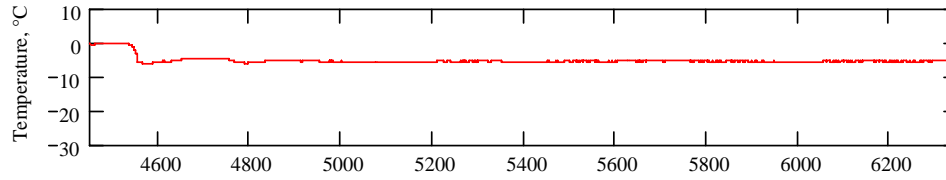
AIRS II cloud event data was classified according to temperature for combined Small and Large T probe data



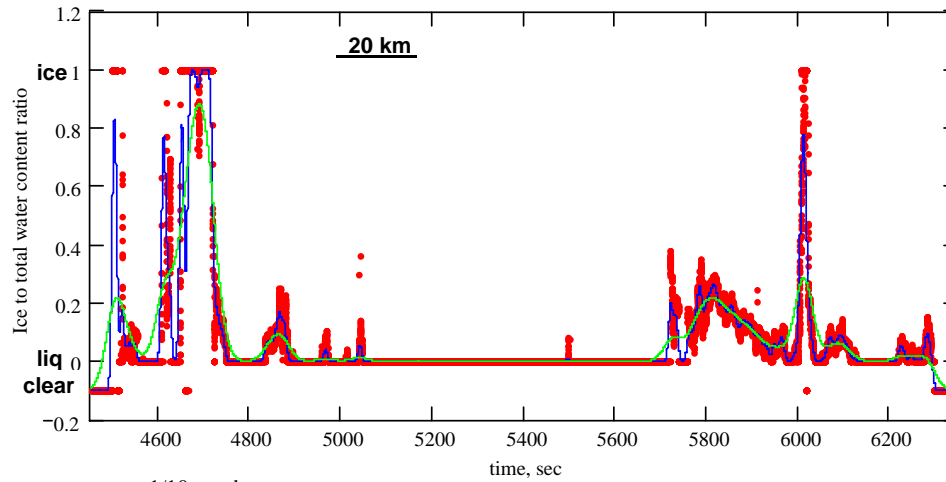


$\Delta t = 1$ sec

2006 C3VP Convair 580 2006/10/26

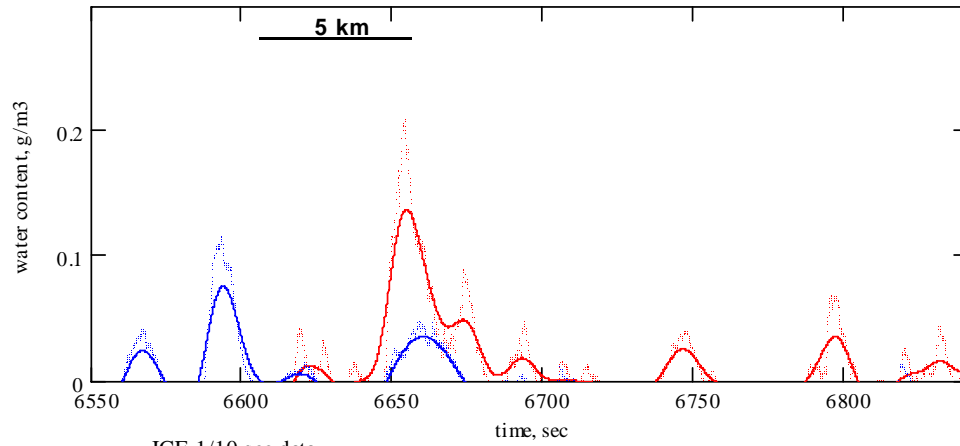
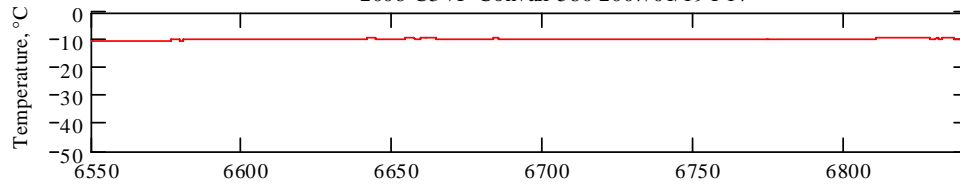


- ICE 1/10 sec data
- ICE 1 sec running average
- LW 1/10 sec data
- LW 1 sec running average

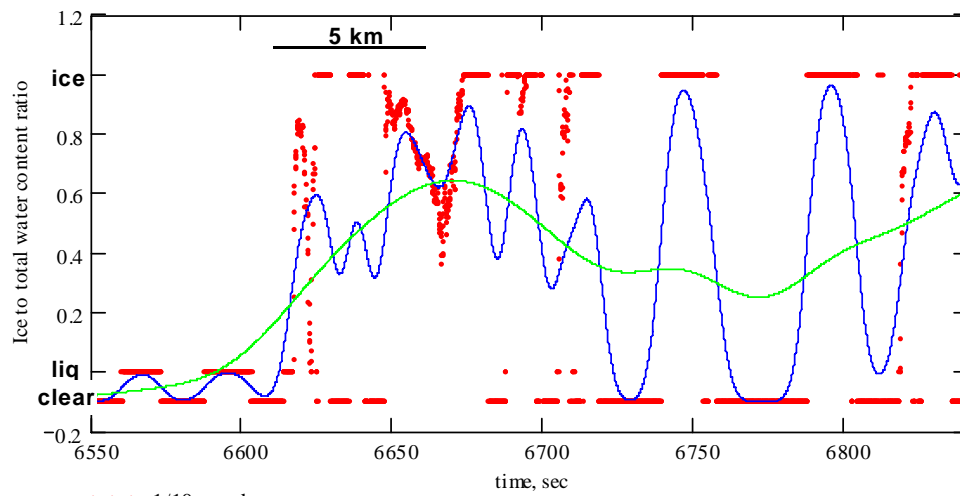


- 1/10 sec data
- average over 1 sec
- average over 5 sec

2006 C3VP Convair 580 2007/01/19 F17



- ICE 1/10 sec data
- ICE 1 sec running average
- LW 1/10 sec data
- LW 1 sec running average



- 1/10 sec data
- average over 1 sec
- average over 5 sec

mass probability calculation



Total mass
6

Time window: 1 sec

1s sequence: 6 times, mass 3 \rightarrow prob. 6/6

Time window: 2 sec

1s sequence: 3 times, mass 3 \rightarrow prob. 3/6

3s sequence: once, mass 3 \rightarrow prob. 3/6

Time window: 3 sec

3s sequence: once, mass 2 \rightarrow prob. 2/6

5s sequence: once, mass 4 \rightarrow prob. 4/6

Time window: 4 sec

10s sequence: once, mass 6 \rightarrow prob. 6/6