



*Supplement of*

## **Investigating an indirect aviation effect on mid-latitude cirrus clouds – linking lidar-derived optical properties to in situ measurements**

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The significance test was done with the Mann-whitney U test method. This method is a non-parametric test for unpaired samples with no assumptions of their distributions (different from Student T test).

P= 1 means the two datasets are identical and p < 5% (h=1) indicates both datasets are significantly different

**Results:**

Comparison  $D_{eff}$  of 26 March and 7 April 2014: p = 0.0027346, h=1

Comparison  $N_{par}$  of 26 March and 7 April 2014: p = 0.0, h=1

Comparison  $D_{eff}$  of 26 March and 7 April 2014: p = 0.0, h=1

Comparison  $N_{par}$  of 26 March and 7 April 2014: p = 0.11445, h=1

Comparison  $D_{eff}$  all: p=0.21896, h=1

Compariosn  $N_{par}$  all: p=0.055504, h=1

Comparison  $D_{eff}$  T = [210-215]: p=5.68e<sup>-6</sup>, h=1

Compariosn  $N_{par}$  T = [210-215]: p=4.37e<sup>-8</sup>, h=1

Temperature/K	p-value for $D_{eff}$	p-value for $N_{par}$
208	0.000089346771183	0.203500586807082
209	0.000000000079685	0.000000000007271
210	0.247314327354255	0.000000398791608
211	0.000147928141202	0
212	0.004225973629796	0.125582277030740
213	0.399044916857030	0.079586093204909
214	0.175375892497683	0.160126851351188
215	0.466861486969759	0.020467446677696
216	0.381986850641420	0.223630929883747
217	0.436158517018589	0.460791042628778