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## Supplement of

## Spatially coordinated airborne data and complementary products for aerosol, gas, cloud, and meteorological studies: the NASA ACTIVATE dataset

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Table S1. Instrument performance summary for the King Air and HU-25 Falcon during ACTIVATE. OK = functioned well during the entire flight; "So So" = some loss of data quantity/quality; N/A = no usable data. Deployments are separated by blank rows: Deployment 1 (RF1-RF22), Deployment 2 (RF23-RF40), Deployment 3 (RF41-RF61), Deployment 4 (RF62-RF93), Deployment 5 (RF94-RF148), Deployment 6 (RF149-RF179).

		K	ing Air		Falcon												
RF	Date	AVAPS	HSRL- 2	RSP	DLH	Trace Gas	TAMMS	LARGE CDP/ CAS	FCDP/ 2DS	LARGE Microphysics	LARGE Optical	CCN	AMS	PILS	AC3 Cloud Water	CVI	State Variables
1	2/14/2020	OK	OK	OK	ОК	So So	ОК	So So	ОК	OK	ОК	ОК	OK	ОК	ОК	N/A	ОК
2	2/15/2020	OK	OK	OK	OK	So So	OK	So So	OK	OK	OK	ОК	OK	OK	OK	OK	OK
3	2/17/2020	OK	OK	OK	OK	So So	OK	So So	OK	OK	OK	ОК	OK	OK	OK	OK	OK
4	2/21/2020	N/A	N/A	N/A	OK	So So	OK	So So	OK	OK	OK	ОК	OK	OK	N/A	OK	OK
5	2/22/2020	N/A	N/A	N/A	OK	So So	OK	So So	OK	OK	OK	ОК	OK	OK	OK	OK	OK
6	2/22/2020	N/A	N/A	N/A	OK	So So	OK	So So	OK	OK	OK	OK	OK	OK	OK	ОК	OK
7	2/23/2020	N/A	N/A	N/A	OK	So So	OK	So So	OK	OK	OK	OK	OK	OK	N/A	ОК	OK
8	2/23/2020	N/A	N/A	N/A	OK	So So	OK	So So	OK	OK	OK	ОК	OK	OK	N/A	ОК	OK
9	2/27/2020	OK	OK	OK	OK	So So	OK	So So	OK	OK	OK	OK	OK	OK	OK	ОК	OK
10	2/28/2020	OK	OK	OK	OK	OK	OK	So So	OK	OK	OK	OK	OK	OK	OK	ОК	OK
11	2/28/2020	OK	OK	OK	OK	OK	OK	So So	OK	OK	OK	OK	OK	OK	OK	OK	OK
12	2/29/2020	OK	OK	OK	OK	OK	OK	So So	OK	OK	OK	OK	OK	OK	OK	ОК	OK
13	3/1/2020	OK	OK	OK	OK	OK	OK	So So	OK	OK	OK	OK	OK	OK	OK	ОК	OK
14	3/1/2020	OK	OK	OK	OK	OK	OK	So So	OK	OK	OK	OK	OK	OK	OK	OK	OK
15	3/2/2020	OK	OK	OK	OK	OK	OK	So So	OK	OK	OK	OK	OK	OK	OK	ОК	OK
16	3/6/2020	OK	OK	OK	OK	OK	OK	So So	OK	OK	OK	OK	OK	OK	OK	OK	OK
17	3/8/2020	OK	OK	N/A	OK	OK	OK	So So	So So	OK	OK	ОК	OK	OK	OK	OK	OK
18	3/8/2020	OK	OK	N/A	OK	OK	OK	So So	So So	OK	OK	OK	OK	OK	OK	ОК	OK
19	3/9/2020	OK	OK	OK	OK	ОК	OK	So So	So So	OK	OK	ОК	OK	OK	OK	OK	OK
20	3/11/2020	OK	OK	OK	ОК	OK	ОК	So So	So So	ОК	ОК	ОК	So So	ОК	ОК	ОК	ОК
21	3/12/2020	OK	OK	OK	OK	OK	ОК	So So	So So	ОК	ОК	ОК	So So	ОК	OK	ОК	ОК
22	3/12/2020	OK	OK	OK	ОК	OK	ОК	So So	So So	ОК	ОК	ОК	So So	ОК	ОК	ОК	ОК

23	8/13/2020	OK	OK	OK	ОК	OK	OK	OK	ОК	OK	OK	OK	ОК	N/A	OK	OK	OK
24	8/17/2020	OK	OK	OK	OK	OK	OK	OK	ОК	OK	OK						
25	8/20/2020	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK						
26	8/21/2020	OK	OK	OK	So So	OK	ОК	OK	OK	OK	OK						
27	8/25/2020	OK	OK	OK	So So	OK	ОК	OK	OK	OK	OK						
28	8/26/2020	OK	OK	OK	So So	OK	ОК	OK	OK	OK	OK						
29	8/28/2020	OK	OK	OK	So So	OK	OK	OK	OK	OK	OK						
30	9/2/2020	OK	OK	OK	OK	OK	ОК	OK	OK	OK	OK						
31	9/3/2020	OK	OK	OK	OK	OK	ОК	OK	OK	OK	OK						
32	9/10/2020	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK						
33	9/11/2020	OK	OK	OK	OK	OK	OK	OK	ОК	OK	OK						
34	9/15/2020	OK	OK	OK	OK	N/A	OK	OK	ОК	OK	OK						
35	9/16/2020	N/A	N/A	OK	OK	OK	OK	OK	OK	OK	OK	N/A	OK	OK	OK	OK	OK
36	9/21/2020	OK	OK	OK	OK	N/A	OK	OK	OK	OK	OK						
37	9/22/2020	OK	OK	OK	ОК	ОК	ОК	ОК	OK	ОК	ОК	So So	OK	OK	ОК	OK	ОК
38	9/23/2020	OK	OK	OK	ОК	ОК	ОК	ОК	ОК	ОК	ОК	So So	ОК	OK	ОК	OK	ОК
39	9/29/2020	OK	OK	OK	ОК	ОК	ОК	ОК	ОК	ОК	ОК	So So	ОК	OK	OK	OK	ОК
40	9/30/2020	OK	OK	OK	ОК	OK	ОК	OK	OK	ОК	OK	So So	ОК	OK	OK	OK	ОК
41	1/27/2021	N/A	N/A	N/A	ОК	OK	OK	So So	OK	So So	ОК	OK	N/A	OK	ОК	So So	ОК
42	1/29/2021	OK	OK	OK	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/ A	N/A
43	1/29/2021	N/A	N/A	N/A	OK	OK	OK	So So	OK	OK	OK	OK	OK	OK	OK	OK	OK
44	2/3/2021	OK	OK	OK	OK	OK	OK	So So	OK	OK	OK	OK	OK	OK	OK	OK	OK
45	2/10/2021	OK	OK	OK	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/ A	N/A
46	2/20/2021	OK	OK	OK	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/ A	N/A

	OK	OK	OK	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/ A	N/A
3/4/2021	OK	OK	OK	ОК	N/A	ОК	So So	ОК	ОК	ОК	ОК	N/A	N/A	OK	N/A	OK
3/5/2021	OK	OK	OK	ОК	N/A	ОК	So So	ОК	OK	ОК	OK	N/A	N/A	OK	N/A	OK
3/5/2021	OK	OK	OK	ОК	N/A	ОК	So So	OK	OK	ОК	OK	N/A	N/A	OK	N/A	OK
3/8/2021	OK	OK	OK	OK	N/A	OK	So So	OK	OK	OK	OK	N/A	N/A	OK	N/A	OK
3/9/2021	OK	OK	OK	OK	N/A	OK	So So	OK	OK	OK	OK	N/A	N/A	OK	N/A	OK
3/12/2021	OK	OK	OK	OK	N/A	OK	So So	OK	OK	OK	OK	N/A	N/A	OK	N/A	OK
3/12/2021	OK	OK	OK	OK	N/A	OK	So So	OK	OK	OK	OK	N/A	N/A	OK	N/A	OK
3/20/2021	OK	OK	OK	OK	N/A	OK	So So	OK	OK	OK	OK	N/A	N/A	OK	N/A	OK
3/23/2021	OK	OK	OK	OK	N/A	OK	So So	OK	OK	OK	OK	N/A	N/A	OK	N/A	OK
3/29/2021	OK	OK	OK	OK	N/A	OK	So So	OK	OK	OK	OK	N/A	N/A	OK	N/A	OK
3/30/2021	OK	OK	OK	OK	N/A	OK	So So	OK	OK	OK	OK	N/A	N/A	OK	N/A	OK
3/30/2021	OK	OK	OK	OK	N/A	OK	So So	OK	OK	OK	OK	N/A	N/A	OK	N/A	OK
4/2/2021	OK	OK	OK	OK	N/A	OK	So So	OK	OK	OK	OK	N/A	N/A	OK	N/A	OK
4/2/2021	OK	OK	N/A	OK	N/A	OK	So So	OK	OK	OK	OK	N/A	N/A	OK	N/A	OK
5/13/2021	OK	OK	OK	OK	OK	OK	So So	OK	OK	OK	OK	OK	OK	OK	N/A	OK
5/14/2021	OK	OK	OK	OK	OK	OK	So So	OK	OK	OK	OK	OK	OK	N/A	ОК	OK
5/14/2021	OK	OK	OK	OK	OK	OK	So So	OK	OK	OK	OK	OK	OK	N/A	ОК	OK
5/15/2021	OK	OK	OK	OK	OK	OK	So So	OK	OK	OK	OK	OK	OK	N/A	OK	OK
5/18/2021	OK	OK	OK	OK	OK	OK	So So	OK	OK	OK	OK	OK	OK	OK	ОК	OK
5/19/2021	OK	OK	OK	OK	ОК	OK	So So	OK	OK	OK	OK	OK	OK	OK	OK	OK
5/19/2021	OK	OK	OK	OK	OK	OK	So So	OK	OK	OK	OK	OK	OK	OK	OK	OK
5/20/2021	OK	OK	OK	OK	OK	OK	So So	OK	OK	OK	OK	OK	OK	OK	ОК	OK
5/21/2021	OK	OK	OK	OK	ОК	OK	So So	OK	OK	OK	OK	OK	OK	OK	OK	OK
5/21/2021	OK	OK	OK	OK	OK	OK	So So	OK	OK	OK	OK	OK	OK	OK	ОК	OK
5/25/2021	OK	OK	OK	OK	OK	OK	So So	OK	OK	OK	OK	OK	OK	OK	ОК	OK
5/26/2021	OK	OK	OK	OK	OK	OK	So So	OK	OK	OK	OK	OK	OK	OK	OK	OK
5/26/2021	OK	OK	OK	ОК	OK	OK	So So	OK	OK	OK	OK	OK	OK	OK	OK	OK
6/1/2021	OK	OK	OK	ОК	OK	ОК	So So	OK	OK	OK	OK	ОК	ОК	OK	OK	OK
		OK	OK	OK	ОК	OK	So So	OK	OK	OK	OK	ОК	OK	ОК	OK	OK
	3/5/2021 3/5/2021 3/5/2021 3/8/2021 3/9/2021 3/12/2021 3/20/2021 3/23/2021 3/29/2021 3/30/2021 4/2/2021 4/2/2021 5/13/2021 5/14/2021 5/14/2021 5/15/2021 5/19/2021 5/20/2021 5/21/2021 5/25/2021 5/26/2021 5/26/2021	3/5/2021 OK 3/5/2021 OK 3/5/2021 OK 3/8/2021 OK 3/9/2021 OK 3/12/2021 OK 3/12/2021 OK 3/20/2021 OK 3/23/2021 OK 3/30/2021 OK 3/30/2021 OK 4/2/2021 OK 4/2/2021 OK 5/13/2021 OK 5/14/2021 OK 5/14/2021 OK 5/14/2021 OK 5/15/2021 OK 5/19/2021 OK 5/19/2021 OK 5/19/2021 OK 5/20/2021 OK 5/20/2021 OK 5/21/2021 OK 5/25/2021 OK 5/25/2021 OK 5/25/2021 OK 5/26/2021 OK	3/5/2021 OK OK 3/5/2021 OK OK 3/8/2021 OK OK 3/9/2021 OK OK 3/12/2021 OK OK 3/12/2021 OK OK 3/12/2021 OK OK 3/20/2021 OK OK 3/23/2021 OK OK 3/29/2021 OK OK 3/30/2021 OK OK 4/2/2021 OK OK 4/2/2021 OK OK 5/14/2021 OK OK 5/19/2021 OK OK 5/20/2021 OK OK 5/20/2021 OK OK 5/21/2021 OK OK 5/21/2021 OK OK 5/21/2021 OK OK 5/25/2021 OK OK 5/25/2021 OK OK	3/5/2021 OK OK OK OK 3/5/2021 OK OK OK OK 3/8/2021 OK OK OK OK 3/9/2021 OK OK OK OK 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OK OK OK OK OK 5/14/2021 OK OK OK OK OK 5/15/2021 OK OK OK OK OK 5/19/2021 OK OK OK OK OK 5/20/2021 OK OK OK OK OK 5/20/2021 OK OK OK OK OK 5/20/2021 OK OK OK OK OK 5/21/2021 OK OK OK OK OK 5/25/2021 OK OK OK OK OK 5/25/2021 OK OK OK OK OK 5/26/2021 OK OK OK OK OK 5/26/2021 OK OK OK OK OK 5/26/2021 OK OK OK OK OK	3/5/2021 OK OK OK OK N/A OK 3/5/2021 OK OK OK OK OK N/A OK 3/8/2021 OK OK OK OK OK N/A OK 3/9/2021 OK OK OK OK OK N/A OK 3/9/2021 OK OK OK OK OK N/A OK 3/12/2021 OK OK OK OK OK N/A OK 3/12/2021 OK OK OK OK OK N/A OK 3/12/2021 OK OK OK OK OK N/A OK 3/20/2021 OK OK OK OK OK N/A OK 3/23/2021 OK OK OK OK OK N/A OK 3/29/2021 OK OK OK OK OK N/A OK 3/30/2021 OK OK OK OK OK N/A OK 3/30/2021 OK OK OK OK OK N/A OK 3/30/2021 OK OK OK OK OK N/A OK 4/2/2021 OK OK OK OK OK N/A OK 4/2/2021 OK OK OK OK OK N/A OK 5/14/2021 OK OK OK OK OK OK 5/14/2021 OK OK OK OK OK OK 5/19/2021 OK OK OK OK OK OK 5/20/2021 OK OK OK OK OK OK 5/21/2021 OK OK OK OK OK OK 5/221/2021 OK OK OK OK OK OK	3/5/2021 OK OK OK OK N/A OK So So 3/5/2021 OK OK OK OK N/A OK So So 3/8/2021 OK OK OK OK OK N/A OK So So 3/8/2021 OK OK OK OK OK N/A OK So So 3/9/2021 OK OK OK OK OK N/A OK So So 3/12/2021 OK OK OK OK OK N/A OK So So 3/12/2021 OK OK OK OK OK N/A OK So So 3/12/2021 OK OK OK OK OK N/A OK So So 3/12/2021 OK OK OK OK OK N/A OK So So 3/20/2021 OK OK OK OK N/A OK So So 3/23/2021 OK OK OK OK N/A OK So So 3/29/2021 OK OK OK OK N/A OK So So 3/29/2021 OK OK OK OK N/A OK So So 3/30/2021 OK OK OK OK N/A OK So So 3/30/2021 OK OK OK OK N/A OK So So 3/30/2021 OK OK OK OK N/A OK So So 4/2/2021 OK OK OK OK N/A OK So So 4/2/2021 OK OK OK OK N/A OK So So 5/14/2021 OK OK OK OK N/A OK So So 5/14/2021 OK OK OK OK OK N/A OK So So 5/14/2021 OK OK OK OK OK OK OK OK So So 5/14/2021 OK OK OK OK OK OK OK So So 5/14/2021 OK OK OK OK OK OK OK So So 5/14/2021 OK OK OK OK OK OK OK So So 5/19/2021 OK OK OK OK OK OK OK So So 5/19/2021 OK OK OK OK OK OK OK So So 5/19/2021 OK OK OK OK OK OK OK So So 5/19/2021 OK OK OK OK OK OK OK So So 5/19/2021 OK OK OK OK OK OK OK So So 5/19/2021 OK OK OK OK OK OK OK So So 5/19/2021 OK OK OK OK OK OK OK So So 5/21/2021 OK OK OK OK OK OK OK So So 5/21/2021 OK OK OK OK OK OK OK So So 5/25/2021 OK OK OK OK OK OK OK So So 5/26/2021 OK OK OK OK OK OK OK OK So So 5/26/2021 OK OK OK OK OK OK OK OK So So 5/26/2021 OK OK OK OK OK OK OK OK So So 5/26/2021 OK OK OK OK OK OK OK OK OK So So 5/26/2021 OK OK OK OK OK OK OK OK OK So So 5/26/2021 OK OK OK OK OK OK OK OK OK So So 5/26/2021 OK OK OK OK OK OK OK OK OK So So 5/26/2021 OK So So 5/26/2021 OK So So 5/26/2021 OK OK OK OK OK OK OK OK OK So So 5/26/2021 OK OK OK OK OK OK OK OK OK So So 5/26/2021 OK OK OK OK OK OK OK OK OK So So 5/26/2021 OK So So 5/26/2021 OK So So 5/26/2021 OK OK OK OK OK OK OK OK OK So So 5/26/2021 OK OK OK OK OK OK OK OK OK So So 5/26/2021 OK	3/5/2021 OK OK OK OK N/A OK So So OK 3/5/2021 OK OK OK OK N/A OK So So OK 3/5/2021 OK OK OK OK N/A OK So So OK 3/8/2021 OK OK OK OK N/A OK So So OK 3/9/2021 OK OK OK OK N/A OK So So OK 3/12/2021 OK OK OK OK N/A OK So So OK 3/12/2021 OK OK OK OK N/A OK So So OK 3/12/2021 OK OK OK OK N/A OK So So OK 3/12/2021 OK OK OK OK N/A OK So So OK 3/20/2021 OK OK OK OK N/A OK So So OK 3/20/2021 OK OK OK OK N/A OK So So OK 3/29/2021 OK OK OK OK N/A OK So So OK 3/29/2021 OK OK OK OK N/A OK So So OK 3/30/2021 OK OK OK OK N/A OK So So OK 3/30/2021 OK OK OK OK N/A OK So So OK 3/30/2021 OK OK OK OK N/A OK So So OK 4/2/2021 OK OK OK OK N/A OK So So OK 4/2/2021 OK OK OK OK N/A OK So So OK 5/14/2021 OK OK OK N/A OK N/A OK So So OK 5/14/2021 OK OK OK OK OK OK OK OK OK So So OK 5/14/2021 OK OK OK OK OK OK OK OK So So OK 5/15/2021 OK OK OK OK OK OK OK OK So So OK 5/19/2021 OK OK OK OK OK OK OK OK So So OK 5/19/2021 OK OK OK OK OK OK OK OK So So OK 5/19/2021 OK OK OK OK OK OK OK OK So So OK 5/19/2021 OK OK OK OK OK OK OK OK So So OK 5/19/2021 OK OK OK OK OK OK OK So So OK 5/19/2021 OK OK OK OK OK OK OK So So OK 5/19/2021 OK OK OK OK OK OK OK So So OK 5/20/2021 OK OK OK OK OK OK OK So So OK 5/21/2021 OK OK OK OK OK OK OK So So OK 5/21/2021 OK OK OK OK OK OK OK So So OK 5/22/2021 OK OK OK OK OK OK OK OK So So OK 5/25/2021 OK OK OK OK OK OK OK OK So So OK 5/26/2021 OK OK OK OK OK OK OK OK So So OK 5/26/2021 OK OK OK OK OK OK OK OK So So OK 5/26/2021 OK OK OK OK OK OK OK OK So So OK 5/26/2021 OK OK OK OK OK OK OK OK So So OK 5/26/2021 OK OK OK OK OK OK OK OK So So OK 5/26/2021 OK OK OK OK OK OK OK OK So So OK 5/26/2021 OK OK OK OK OK OK OK OK So So OK 5/26/2021 OK OK OK OK OK OK OK OK So So OK 5/26/2021 OK OK OK OK OK OK OK OK OK So So OK 5/26/2021 OK OK OK OK OK OK OK OK So So OK 5/26/2021 OK OK OK OK OK OK OK OK So So OK 5/26/2021 OK OK OK OK OK OK OK OK OK So So OK 5/26/2021 OK OK OK OK OK OK OK OK OK So So OK 5/26/2021 OK OK OK OK OK OK OK OK OK So So OK	3/5/2021 OK OK OK OK N/A OK So So OK OK 3/5/2021 OK OK OK OK OK N/A OK So So OK OK 3/5/2021 OK OK OK OK OK N/A OK So So OK OK 3/8/2021 OK OK OK OK OK N/A OK So So OK OK 3/9/2021 OK OK OK OK OK N/A OK So So OK OK 3/9/2021 OK OK OK OK OK N/A OK So So OK OK OK 3/12/2021 OK OK OK OK OK N/A OK So So OK OK OK 3/12/2021 OK OK OK OK N/A OK So So OK OK OK 3/12/2021 OK OK OK OK N/A OK So So OK OK OK 3/20/2021 OK OK OK OK N/A OK So So OK OK OK 3/23/2021 OK OK OK OK N/A OK So So OK OK OK 3/29/2021 OK OK OK OK N/A OK So So OK OK OK 3/30/2021 OK OK OK OK N/A OK So So OK OK OK 3/30/2021 OK OK OK OK N/A OK So So OK OK OK 3/30/2021 OK OK OK OK N/A OK So So OK OK OK 3/30/2021 OK OK OK OK N/A OK So So OK OK OK 4/2/2021 OK OK OK OK N/A OK So So OK OK OK 4/2/2021 OK OK OK OK N/A OK So So OK OK OK 5/14/2021 OK OK OK N/A OK N/A OK So So OK OK OK 5/14/2021 OK	3/5/2021 OK OK OK OK N/A OK So So OK OK OK OK 3/5/2021 OK OK OK OK OK N/A OK So So OK OK OK OK 3/8/2021 OK OK OK OK OK N/A OK So So OK OK OK OK 3/8/2021 OK OK OK OK OK N/A OK So So OK OK OK OK 3/8/2021 OK OK OK OK N/A OK So So OK OK OK OK 3/9/2021 OK OK OK OK N/A OK So So OK OK OK OK 3/12/2021 OK OK OK OK OK N/A OK So So OK OK OK OK 3/12/2021 OK OK OK OK N/A OK So So OK 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77	6/2/2021	OK	OK	OK	ОК	ОК	ОК	So So	ОК	So So	ОК	ОК	ОК	ОК	ОК	OK	ОК
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79	6/7/2021	OK	OK	OK	OK	OK	OK	So So	OK	So So	OK	OK	OK	OK	ОК	ОК	OK
80	6/7/2021	OK	OK	OK	ОК	OK	ОК	So So	ОК	OK	OK	OK	ОК	OK	ОК	ОК	OK
81	6/8/2021	OK	OK	OK	ОК	OK	ОК	So So	ОК	OK	OK	OK	ОК	OK	ОК	ОК	OK
82	6/8/2021	OK	OK	OK	ОК	OK	ОК	So So	ОК	OK	OK	OK	ОК	OK	ОК	ОК	OK
83	6/15/2021	OK	OK	OK	ОК	OK	ОК	So So	ОК	OK	OK	OK	ОК	OK	OK	ОК	OK
84	6/16/2021	OK	OK	OK	ОК	OK	ОК	So So	ОК	OK	OK	OK	ОК	OK	ОК	ОК	OK
85	6/17/2021	OK	OK	OK	ОК	OK	ОК	So So	ОК	OK	OK	OK	ОК	OK	ОК	ОК	OK
86	6/22/2021	OK	OK	OK	ОК	OK	ОК	So So	ОК	OK	OK	OK	ОК	OK	ОК	ОК	OK
87	6/24/2021	OK	OK	OK	ОК	OK	ОК	So So	ОК	OK	So So	OK	ОК	OK	OK	ОК	OK
88	6/26/2021	OK	OK	OK	ОК	OK	ОК	So So	ОК	OK	So So	OK	ОК	OK	OK	ОК	OK
89	6/26/2021	OK	OK	OK	OK	OK	OK	So So	OK	OK	So So	OK	OK	OK	OK	ОК	OK
90	6/28/2021	OK	OK	OK	OK	OK	OK	So So	OK	OK	So So	OK	OK	OK	ОК	ОК	OK
91	6/29/2021	OK	OK	OK	OK	OK	OK	So So	OK	OK	OK	OK	OK	OK	OK	ОК	OK
92	6/30/2021	OK	OK	OK	ОК	OK	ОК	So So	ОК	OK	OK	OK	ОК	OK	OK	ОК	OK
93	6/30/2021	OK	OK	OK	OK	OK	OK	So So	OK	OK	OK	OK	OK	OK	OK	ОК	OK
94	11/30/2021	OK	OK	OK	OK	N/A	OK	OK	OK	OK	OK						
95	12/1/2021	OK	OK	OK	OK	N/A	OK	OK	OK	OK	OK						
96	12/7/2021	OK	OK	OK	OK	OK	OK	OK	ОК	OK	OK						
97	12/9/2021	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK						
98	12/9/2021	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK						
99	12/10/2021	OK	OK	OK	OK	OK	OK	OK	ОК	OK	OK						
100	1/11/2022	OK	OK	OK	OK	OK	OK	OK	ОК	OK	OK						
101	1/11/2022	OK	OK	OK	OK	OK	OK	OK	OK	ОК	OK						
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103	1/12/2022	OK	OK	OK	OK	OK	OK	OK	OK	ОК	OK						
104	1/15/2022	OK	OK	OK	OK	OK	OK	OK	ОК	OK	OK						
105	1/18/2022	OK	OK	OK	OK	OK	OK	OK	ОК	ОК	OK						
106	1/18/2022	OK	OK	OK	ОК	OK	ОК	ОК	ОК	OK	ОК	OK	ОК	ОК	OK	OK	ОК
107	1/19/2022	OK	OK	OK	ОК	OK	ОК	ОК	ОК	OK	ОК	ОК	ОК	ОК	OK	OK	ОК

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110	1/24/2022	OK	OK	OK	ОК	OK	ОК	OK	OK	OK							
111	1/26/2022	OK	OK	OK	ОК	OK	ОК	OK	OK	OK							
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113	1/27/2022	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	ОК	OK	OK
114	1/27/2022	OK	OK	N/A	ОК	OK	OK	OK	ОК	OK							
115	2/1/2022	OK	OK	OK	ОК	OK	OK	OK	ОК	OK							
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119	2/5/2022	OK	OK	OK	ОК	OK	OK	OK	OK	OK	ОК	OK	OK	ОК	OK	ОК	ОК
120	2/15/2022	OK	OK	OK	ОК	OK	OK	OK	OK	OK	ОК	OK	OK	ОК	OK	ОК	ОК
121	2/15/2022	OK	OK	OK	ОК	OK	OK	OK	OK	OK	ОК	OK	OK	ОК	OK	ОК	ОК
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123	2/16/2022	OK	OK	OK	OK	OK	OK	OK	OK	OK	ОК	OK	OK	OK	OK	ОК	ОК
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128	2/26/2022	OK	OK	OK	ОК	OK	ОК	OK	OK	OK							
129	2/26/2022	N/A	N/A	OK	ОК	OK	OK	OK	ОК	OK							
130	3/2/2022	OK	OK	OK	ОК	OK	OK	OK	ОК	OK							
131	3/3/2022	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	ОК	OK	OK	OK
132	3/3/2022	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	ОК	OK	OK	OK
133	3/4/2022	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	ОК	OK	OK	OK
134	3/4/2022	OK	OK	OK	ОК	OK	OK	OK	ОК	OK							
135	3/7/2022	OK	OK	OK	ОК	OK	ОК	So So	OK	ОК	OK						
136	3/7/2022	N/A	N/A	N/A	ОК	OK	ОК	ОК	ОК	ОК	OK	ОК	ОК	So So	ОК	OK	OK

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	138	3/13/2022	OK	OK	OK	ОК	ОК	ОК	ОК	ОК	ОК	ОК	So So	ОК	ОК	ОК	ОК	ОК
	139	3/14/2022	OK	OK	OK	ОК	ОК	ОК	ОК	ОК	ОК	ОК	ОК	ОК	ОК	OK	ОК	OK
	140	3/14/2022	OK	OK	OK	ОК	OK	ОК	ОК	ОК	ОК	ОК	OK	OK	ОК	OK	ОК	OK
	141	3/18/2022	OK	OK	OK	ОК	ОК	ОК	ОК	ОК	ОК	ОК	OK	OK	OK	OK	ОК	OK
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	144	3/26/2022	OK	OK	OK	ОК	OK	ОК	OK	ОК	ОК	ОК	ОК	ОК	ОК	OK	ОК	OK
	145	3/26/2022	OK	OK	OK	ОК	ОК	ОК	ОК	ОК	OK	ОК	OK	OK	OK	OK	ОК	OK
	146	3/28/2022	OK	OK	OK	ОК	ОК	ОК	ОК	OK	OK	ОК	ОК	ОК	OK	OK	ОК	OK
	147	3/29/2022	OK	OK	OK	ОК	OK	ОК	ОК	ОК	ОК	ОК	ОК	ОК	OK	OK	ОК	OK
	148	3/29/2022	OK	OK	OK	ОК	OK	ОК	OK	OK	OK	ОК	ОК	ОК	OK	OK	ОК	OK
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	149	5/3/2022	OK	OK	OK	OK	OK	OK	OK	OK	ОК	OK	OK	OK	OK	OK	OK	OK
	150	5/5/2022	OK	OK	OK	OK	OK	OK	OK	OK	ОК	OK	OK	OK	OK	OK	OK	OK
	151	5/5/2022	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	ОК	OK
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	153	5/16/2022	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
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	160	5/21/2022	OK	OK	OK	ОК	ОК	ОК	ОК	ОК	ОК	ОК	ОК	So So	ОК	ОК	ОК	ОК
	161	5/31/2022	OK	OK	OK	ОК	OK	ОК	OK	ОК	OK	ОК	ОК	OK	ОК	OK	OK	OK
	162	6/2/2022	OK	OK	OK	ОК	OK	ОК	OK	OK	OK	OK	ОК	ОК	ОК	OK	OK	OK
	163	6/2/2022	OK	OK	OK	ОК	OK	OK	ОК	OK	OK	OK	OK	ОК	ОК	OK	OK	OK

164	6/3/2022	OK	OK	OK	OK	OK	ОК	OK									
165	6/5/2022	OK	OK	OK	OK	OK	ОК	OK									
166	6/7/2022	OK	OK	OK	OK	OK	ОК	OK									
167	6/7/2022	OK	OK	OK	ОК	OK	OK	OK	OK	OK	OK	OK	OK	OK	ОК	OK	OK
168	6/8/2022	OK	OK	OK	OK	OK	OK	OK									
169	6/8/2022	OK	So So	OK	OK	OK	OK	OK	OK								
170	6/10/2022	OK	So So	OK	OK	OK	OK	OK	OK								
171	6/10/2022	OK	OK	OK	OK	OK	OK	OK									
172	6/11/2022	OK	OK	OK	OK	OK	OK	OK									
173	6/11/2022	OK	OK	OK	OK	OK	OK	OK									
174	6/13/2022	OK	OK	OK	OK	OK	OK	OK									
175	6/13/2022	OK	OK	OK	OK	OK	OK	OK									
176	6/14/2022	OK	OK	OK	OK	OK	OK	OK									
177	6/16/2022	OK	OK	OK	OK	OK	OK	OK									
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179	6/18/2022	OK	ОК	OK	OK	OK	OK	OK	OK	OK							

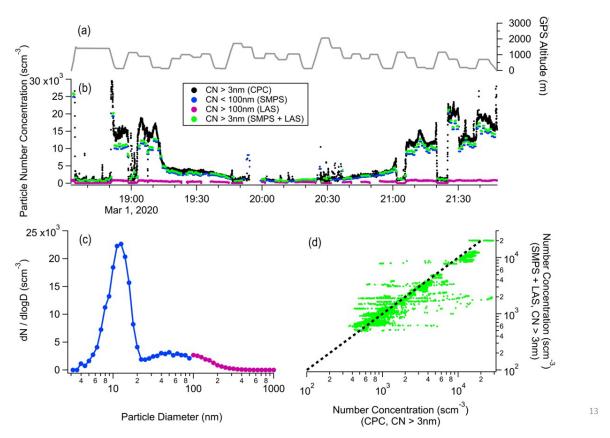


Figure S1: Closure analysis for particle number concentration measurements derived from an ultrafine CPC, SMPS, and LAS. (a-b) Time series data are shown for Research Flight 14 (1 March 2020), (c) an average size distribution during a MinAlt leg at approximately UTC 21:17, and (d) a scatterplot of the integrated number concentration derived from LAS+SMPS instruments against number concentration directly measured by a CPC. For panel d, orthogonal distance regression (ODR) linear fitting resulted in a slope of 0.722, intercept of 433 cm<sup>-3</sup>, and coefficient of determination (r<sup>2</sup>) of 0.861. Mean absolute error (MAE) and mean absolute percentage error (MAPE) values are 1219 cm<sup>-3</sup> and 24.9%, respectively.