

STERAO 96  
*Flight Summary*

<u>Date/Flight:</u>	<u>Start Time:</u>	<u>Stop Time:</u>	<u>GPS:</u>
23 June/I	18:58:36 MDT	20:34:15 MDT	Good
23 June/II			
26 June	17:07:39 MDT	20:42:29 MDT	No good
27 June	15:04:39 MDT	18:35:18 MDT	No good
28 June	16:08:15 MDT	18:26:54 MDT	No good
29 June	14:05:13 MDT	16:05:52 MDT	Good
5 July	14:47:04 MDT	18:00:02 MDT	Good
9 July/I	13:50:04 MDT	16:03:35 MDT	No good
9 July/II	17:08:45 MDT	20:21:44 MDT	No good
10 July	16:06:09 MDT	19:29:25 MDT	Good
12 July/I*	16:21:28 MDT	17:41:28 MDT	Good
12 July/II*	17:51:32 MDT	19:26:11 MDT	No good
13 July/I*	15:06:15 MDT	16:01:22 MDT	Good
13 July/II*	16:08:54 MDT	17:59:42 MDT	Good
15 July	16:06:16 MDT	18:50:57 MDT	Good
16 July/I	11:47:44 MDT	14:16:49 MDT	Good
16 July/II	15:37:49 MDT	18:22:48 MDT	Good
19 July	07:44:26 MDT	08:46:05 MDT	Good

Note: \* denotes a flight during which a power failure occurred.

All times are Citation DAS times before correction.

# STERA0 96

## Pitot Pressure Data Quality Summary

### Individual Flight Summaries

<u>Date/Flight:</u>	<u>Pitot Nose Invalid:</u>	<u>Pitot Wing Invalid:</u>
23 June/I		
23 June/II		
26 June		
27 June		
28 June	16:46:01 - 18:26:54 MDT	
29 June	14:05:13 - 16:05:52 MDT	
5 July	14:52:36 - 15:28:12 MDT 16:28:24 - 18:00:02 MDT	17:03:20 - 17:08:20 MDT 17:30:00 - 18:00:02 MDT
9 July/I		
9 July/II	17:29:03 - 18:24:11 MDT 20:00:24 - 20:21:44 MDT	
10 July	16:48:08 - 19:19:45 MDT	
12 July/I**	16:43:30 - 17:00:06 MDT	
12 July/II**	18:45:03 - 19:20:47 MDT	
13 July/I**	15:29:03 - 15:38:23 MDT 15:47:34 - 15:53:45 MDT	
13 July/II**		16:08:54 - 17:36:54 MDT - ✖
15 July	18:10:09 - 18:29:45 MDT	
16 July/I		13:36:05 - 13:57:05 MDT - ✖
16 July/II	16:42:15 - 16:55:28 MDT 17:25:45 - 17:26:23 MDT	
19 July		

*use pitot wing  
except - \**

Note: \*\* denotes a flight during which a power failure occurred.  
All times are Citation DAS times before correction.

**STERAO 96**  
*Time Data Quality Summary*

<u>Date/Flight:</u>	<u>Citation Time Relative to:</u>			<u>Notes:</u>
	<u>GPS Time:</u>	<u>B. Ridley's Time:</u>	<u>Video Time:</u>	
23 June/I	variable	N/A	N/A	See attached
23 June/II		N/A	N/A	
26 June	N/A	N/A	N/A	Data missing
27 June	1 sec slow	0 sec	N/A	See attached
28 June	N/A	2 sec fast	N/A	No GPS data
29 June	variable	N/A	N/A	See attached
5 July	variable	7 sec fast	N/A	See attached
9 July/I	N/A	variable	variable	See attached
9 July/II	N/A	variable	N/A	See attached
10 July	variable	21 sec fast	N/A	See attached
12 July/I*	variable	1 sec slow	N/A	See attached
12 July/II*	N/A	variable	variable	See attached
13 July/I*	0 sec	1 sec fast	N/A	
13 July/II*	1 sec fast	12 sec slow	N/A	
15 July	variable	3 sec fast	N/A	See attached
16 July/I	variable	N/A	N/A	See attached
16 July/II	variable	2 sec slow	N/A	See attached
19 July	1 sec fast	N/A	N/A	

Note: \* denotes a flight during which a power failure occurred.

# STERAO 96

## Time Data Quality Summary

### Individual Flight Summaries

<u>Date/Flight:</u>	<u>Citation time relative to:</u> <u>GPS Time:</u>	<u>B. Ridley's Time:</u>	<u>Video Time:</u>	<u>Correction</u>
23 June	18:58:36 - 19:03:00 <sup>EST</sup> UTC 32 sec fast 19:03:01 - 20:09:26 <sup>EST</sup> UTC 9 sec fast 20:09:27 - 20:34:15 <sup>EST</sup> UTC 10 sec fast	UTC		-9
26 June	<hr/>	subtract 9 sec		
27 June	Data missing after 15:12:35 MDT	100 sec fast		-100
29 June	14:05:13 - 14:14:47 MDT: 7 sec fast 14:14:48 - 16:05:52 MDT: 2 sec fast			-2
5 July	14:47:04 - 14:50:59 MDT: 11 sec fast 14:51:00 - 15:41:52 MDT: 10 sec fast 15:41:53 - 16:55:09 MDT: 9 sec fast 16:55:10 - 16:56:03 MDT: variable: $y = (0.1694)x - 13985$ 16:56:04 - 17:03:31 MDT: 1 sec slow 17:03:32 - 17:08:04 MDT: variable: $y = (0.2605)x - 21618$ 17:08:05 - 17:30:36 MDT: 74 sec slow 17:30:37 - 18:00:02 MDT: variable: $y = (0.2602)x - 21950$	use 10 sec fast		-10
9 July/I	stm(UTC)	variable: $z = (0.0104)x - 755$	variable: $w = (0.0108)x - 804$	
9 July/II		variable: $z = (0.0103)x - 872$		
10 July	16:06:09 - 16:07:31 MDT: 23 sec fast	use average offset		

$$\begin{aligned} \text{stm(UTC)} &= \text{citation(UTC)} + z - 3 \\ \text{stm(MDT)} &= \text{citation(MDT)} + z - 6 \end{aligned}$$

16:07:32 - 17:58:49 MDT:  
19 sec fast  
17:58:50 - 19:29:25 MDT:  
18 sec fast

12 July/I 16:21:28 - 16:28:46 MDT:  
0 sec  
16:28:47 - 16:55:50 MDT:  
1 sec slow  
16:55:51 - 17:24:04 MDT  
2 sec slow  
17:24:05 - 17:41:28 MDT  
3 sec slow

OK

12 July/II

variable:  
 $z = (0.014) x - 1200$

variable:  
 $w = (0.0111) x - 894$

15 July 16:06:16 - 17:54:15 MDT:  
4 sec fast  
17:54:16 - 18:50:57 MDT:  
3 sec fast

use 4 sec

16 July/I 11:47:44 - 11:48:13 MDT:  
5 sec fast  
11:48:14 - 13:08:05 MDT:  
1 sec fast  
13:08:06 - 14:16:49 MDT:  
0 sec

OK

16 July/II 15:37:49 - 17:45:39 MDT:  
1 sec slow  
17:45:40 - 18:22:48 MDT:  
2 sec slow

OK

**Note:**

For the variable time offsets, the variables are defined as follows:

$y = [\text{GPS time} - \text{Citation DAS time}] \text{ (sec)}$

$z = [\text{B. Ridley's time} - \text{Citation DAS time}] \text{ (sec)}$

$w = [\text{video time} - \text{Citation DAS time}] \text{ (sec)}$

$x = \text{Citation DAS time (sec after midnight, UTC)}$

All times are Citation DAS times before correction.

# Data Quality Summary

## 10 July

- on the ground before 79580 + after 91710
- moisture variables no good from 81000 to 91020
- CN bad after 84540
- vertical winds good before 81550. Between 81550 and 87600 they are questionable and are definitely bad in turns. After 87600, vertical winds are bad.
- shadow/or bad after 91130

## 12 July/A

- on the ground before 80980.
- Dewpoint (and all moisture variables) bad from 83600 to 84000.
- vertical winds bad from 82900 to 84500.
- ~~no winds bad before 80980~~
- Both  $\Delta DC$  conc + mean diameter are always zero.

## 12 July/B

- on the ground after 91645
- vertical winds bad before 85930 and bad after ~~89000~~ 90000.
- no CN
- ~~no winds bad~~
- shadow/or bad after 91390.
- no IDC or IDP
- Both  $\Delta DC$  conc + mean diameter are always zero.

## 12 July/A

- on the ground before 76530 ~~76530~~
- winds bad before 76550.
- moisture variables bad after 77600.
- vertical wind bad after 77400.

## no CN

~~no winds bad~~

- no IDC or IDP

- Both  $\Delta DC$  conc + mean diameter are always zero

## 13 July/B

~~no winds bad~~

- winds bad before 84250
- Dewpoint (and moisture variables) bad before 84500 and after 86338.
- vertical winds bad

## 26 June

- on the ground before 83750 + after 96290
- neither  $O_3$  or  $NO_2$  available.
- all moisture variables bad for entire flight.
- completely new archive file.

## 27 June

- on the ground before 77060 + after 88480
- moisture variables no good from 78400 to 87100
- CN no good from 82800 to 87600.
- IDP noisy after 79500
- Both ADC conc + mean diameter are always zero.

## 28 June

- on the ground before 80650 + after 87730
- Dewpoint (and all moisture variables) bad after 87629
- vertical winds bad ~~before 84900~~ for whole flight
- Both ADC conc + mean diam are always zero.
- LWC bad before 80731

## 29 June

- on the ground before 72560 + after 79400
- vertical winds no good after 78300 and questionable before this.

## 5 July

- on the ground before 75170 + ~~after~~
- moisture variables bad after 77400
- vertical wind bad before 75500 + after 81000.
- Both ADC conc + mean diameter are always zero.

## 9 July/I

- on the ground before 72260 + after 79210
- Dewpoint (and other moisture variables) bad from 73500 to 76000.
- LWC bad before 72292

## 9 July/II

- on the ground before 83680 + after 94960
- Dewpoint (+ other moisture variables) bad from 86000 to 93500.
- Vertical winds bad from 84500 to 94000.
- CN bad from 85300 to 94200.
- LWC bad before 83700 + after 94845.

- no CN
- LWC bad.
- no IDC or IDP.
- Both ADC conc + mean diameter are always zero.

15 July

- on the ground before 80120 + after 89420.
- vertical winds good before 87000 + after 88200.

- no CN
- no IDC before 86400
- no IDP.

- Both ADC conc + mean diameter are always zero.

16 July/I

- on the ground before 64560 + after 73000
- no IDC or IDP.

16 July/II

- on the ground before 78640 + after 87740.
- Dewpoint (and moisture variables) bad from 81000 to 81700 and from 82100 to 83500 and from 85000 to 85800.

- no winds before 78600.
- vertical winds bad from 81750 to 82650 and from 85900 to 86450.
- shadow/or bad after 86500.

- no IDP

- Both ADC conc + mean diameter are always zero.