

Initial Preparation (3 - 7 days before flight)

Date (local): YYMMDD

I. Pump performance check

- 1. Methanol cleaning of pump
- 2. Ozone-free (NO O3) air - 10 min
- 3. Check pump current
- 4. Pump pressure measurement
- 5. Pump vacuum measurement

III. Charge chambers with solutions

- 8. Charge cathode cell (3 cc)
- 9. Wait 15 minutes
- 10. Charge anode cell (1.5 cc)
- 11. Rinse syringes

II. High ozone conditioning

- 6. High ozone (HI O3) air - 30 min
- 7. Ozone-free (NO O3) air - 10 min

IV. Test operations

- 12. Sensor background current - 15 min
- 13. Sensor response time - 20 min

V. Storage

- 14. Short ECC sensor leads
- 15. Add cathode solution (2.5 cc)
- 16. Re-pack sonde and store; rinse syringes

Solution # _____

Solution Date _____

OPERATOR _____

SONDE # _____

CURRENT 55 - 110 mA

PRESSURE > 8 psi

VACUUM > 15 in Hg

BACKGRND < 0.5 mA

RESPONSE 25 - 75 s

Flight Preparation (0 - 1 day before flight)

Date (local): YYMMDD

I. Balloon Track shows safe trajectory

II. Recharge chambers with solutions

- 1. Inspect cathode cell for salt
- 2. Remove cath. cap/rinse cath. tubing
- 3. Remove anode cap and solution.
- 4. Add 1 - 2 cc of cathode solution
- 5. Remove cathode solution.
- 6. Charge cathode cell (3 cc)
- 7. Wait 15 minutes
- 8. Charge anode cell (1.5 cc)
- 9. Rinse syringes

IV. Prepare secondary sonde (if necessary) _____

V. Connect radiosonde

- 14. Power OFF ozonesonde
- 15. Connect radiosonde to ozonesonde
- 16. Power ON radiosonde
- 17. Set & record radiosonde frequency
- 18. Power ON ozonesonde

VI. Setup Skysonde

- 16. Skysonde initial setup
- 17. Ozone-free (NO O3) air - 10+ min
- 18. Final ozone background measurement

III. Test operations

- 10. Sensor background current - 10 min
- 11. Sensor response time - 5 min
- 12. Record lab Press., Temp., RH
- 12. Air flow rate measurement - 5 min
- 13. Dry/wet flow rate

VII. Prepare for launch

- 20. Mount pump battery
- 21. Load ozonesonde into flight box
- 22. Attach radiosonde to flight box
- 23. Tape box closed & attach notices

Solution # _____

Solution Date _____

Dry Air Flow Rate Times

Trial 1:	_____	s
Trial 2:	_____	s
Trial 3:	_____	s
Trial 4:	_____	s
Trial 5:	_____	s

Wet Air Flow Rate Times

Trial 1:	_____	s
Trial 2:	_____	s
Trial 3:	_____	s
Trial 4:	_____	s
Trial 5:	_____	s

OPERATOR _____

FLOW RATE 20 - 35 s

LAB TEMP _____ °C

LAB RH _____ %

Avg. dry flow _____ s

Avg. wet flow _____ s

Flow Correction 0.0x(wet-dry)/dr %

RESPONSE < 30 s

BACKGND #1 < 0.08 μA

FINAL BACKGN < 0.08 μA

RADIOSONDE

TYPE _____

SERIAL NO. _____

FREQUENCY _____ MHz

Launch (begin 30 - 45 min before flight)

Launch Info

Date (local): YYMMDD

I. Initial launch preparations

- 1. 30-min. launch notifications
- 2. Prepare launch site
- 3. Assemble balloon train

Elevation (m): _____

Longitude: _____

Latitude: _____

Time Zone: _____

Sfc. Pressure: Gnd. Sta. _____ hPa
 Sonde _____ hPa

Sfc. Temp.: Gnd. Sta. _____ °C
 Sonde _____ °C

Sfc. RH: Gnd. Sta. _____ %
 Sonde _____ %

Sfc. O3: Gnd. Sta. _____ ppb
 Sonde _____ ppb

II. Surface measurements

- 4. Start Skysonde
- 5. Connect radiosonde battery
- 6. Connect ozonesonde battery
- 7. Verify data transmission
- 8. Sfc press/temp/RH measurements
- 9. Sfc ozone measurement

OPERATOR _____

Sky Conditions _____

Date (GMT) YYMMDD

Time (GMT) HH:MM

Time (Local) HH:MM

Balloon Type _____

Balloon Mass _____ g

Weighoff _____ g

Fill Pressure _____ kPa

Burst Height _____ km

Burst Press. _____ hPa

Microtops 1 _____ DU

Microtops 2 _____ DU

Satellite Col. O3 _____ DU

Sfc. O3 1 _____ ppbv

Sfc. O3 2 _____ ppbv

III. Launch

- 12. 5-min. launch notifications
- 13. Start audio recording of flight data
- 14. Inflate balloon
- 15. Final data checks: O3, T, RH, Press, GPS
- 16. Verify antenna pre-amp is "On."
- 17. Release balloon
- 18. Verify Skysonde launch detection (< 1 min)
- 19. Take Microtops measurements
- 20. Get launch-time surface O3 measurement
- 21. Update supply inventory list
- 22. Put away launch equipment

IV. Post-Flight

- 23. Stop data recorder
- 24. Stop Skysonde
- 25. Turn off pre-amp & stow antenna
- 26. Scan prepsheet
- 27. Email data files & prepsheet
- 28. File prepsheet
- 29. Verify GPS alt. matches press. alt.
- If not, pressure offset: _____ hPa
- Rerun Skysonde
- 30. Create plots and update website

FLIGHT NOTES:

Initial Preparation (3 - 7 days before flight)

Date (local): YYMMDD

I. Pump performance check

- 1. Ozone-free (NO O3) air - 10 min
- 2. Check pump current
- 3. Pump pressure measurement
- 4. Pump vacuum measurement

III. Charge chambers with solutions

- 7. Charge cathode cell (3 cc)
- 8. Wait 15 minutes
- 9. Charge anode cell (1.5 cc)
- 10. Rinse syringes

II. High ozone conditioning

- 5. High ozone (HI O3) air - 30 min
- 6. Ozone-free (NO O3) air - 5 min

IV. Test operations

- 11. Sensor background current - 15 min
- 12. Sensor response time - 20 min

V. Storage

- 13. Short ECC sensor leads
- 14. Add cathode solution (2.5 cc)
- 15. Re-pack sonde and store; rinse syringes

OPERATOR	_____
SONDE #	_____
CURRENT	<u>55 - 110</u> mA
PRESSURE	<u>> 8</u> psi
VACUUM	<u>> 15</u> in Hg
BACKGRND	<u>< 0.5</u> mA
RESPONSE	<u>25 - 75</u> s

Flight Preparation (0 - 1 day before flight)

Date (local): YYMMDD

I. Recharge chambers with solutions

- 1. Inspect cathode cell for salt
- 2. Remove cathode cap/rinse cathode tubing
- 3. Remove anode cap and solution.
- 4. Add 1 - 2 cc of cathode solution
- 5. Remove cathode solution.
- 6. Charge cathode cell (3 cc)
- 7. Wait 15 minutes
- 8. Charge anode cell (1.5 cc)
- 9. Rinse syringes

III. Connect sonde units

- 14. Make sure ozonesondes are OFF
- 15. Connect to primary sonde
- 16. Attach SO2 filter
- 17. Connect primary sonde to radiosonde
- 18. Power ON radiosonde.

IV. Setup STRATO

- 19. Run STRATO DUAL for initial setup
- 20. GPS connection test (if necessary)
- 21. Ozone-free (NO O3) air - 10+ min
- 22. Final ozone background measurement

II. Test operations

- 10. Sensor background current - 10 min
- 11. Sensor response time - 5 min
- 12. Record lab Press., Temp., RH
- 12. Air flow rate measurement - 5 min
- 13. Dry/wet flow rate (if necessary)

Solution # _____

Solution Date _____

OPERATOR	_____
FLOW RATE	<u>20 - 35</u> s
LAB TEMP	_____ °C
LAB RH	_____ %
Avg. dry flow	_____ s
Avg. wet flow	_____ s
Flow Correctio	<u>00x(wet-dry)/dr</u> %
RESPONSE	<u>< 30</u> s
BACKGND #1	<u>< 0.08</u> μA
FINAL BACKG	<u>< 0.08</u> μA

Dry Air Flow Rate Times

Trial 1:	_____	s
Trial 2:	_____	s
Trial 3:	_____	s
Trial 4:	_____	s
Trial 5:	_____	s

Wet Air Flow Rate Times

Trial 1:	_____	s
Trial 2:	_____	s
Trial 3:	_____	s
Trial 4:	_____	s
Trial 5:	_____	s

Primary Sonde #: _____

Flight Date: YYMMDD

Sfc. O3 1 _____ ppbv
Sfc. O3 2 _____ ppbv

V. SO2 Filter Test

- 23. Power ON primary, then secondary sonde.
- 24. Run on ozone-free (NO O3) air 5+ min
- 25. Confirm background for primary sonde
- 26. Confirm background for secondary sonde
- 27. Record sonde readings
- 28. Set to low O3 value (~25 ppb) for 2+ min
- 29. Record low O3 sonde readings
- 30. Set to mid O3 value (~75 ppb) for 2+ min
- 31. Record mid O3 sonde readings
- 32. Set to high O3 value (~125 ppb) for 2+min
- 33. Record high O3 sonde readings
- 34. Run on oznoe-free (NO O3) air 5+ min
- 35. Record final sonde readings
- 36. Power OFF ozonesondes
- 37. Power OFF radiosonde

SO2 Filter Test Readings

No O3:	primary _____	secondary _____
Low O3:	primary _____	secondary _____
Mid O3:	primary _____	secondary _____
High O3:	primary _____	secondary _____
No O3:	primary _____	secondary _____

VII. Prepare for launch

- 38. Mount pump batteries
- 39. Load ozonesondes into flight boxes
- 40. Attach radiosonde to primary flight box
- 41. Tape boxes closed & attach notices
- 42. Tape boxes together

FLIGHT NOTES:

Reconditioning Procedure (1 - 4 days before flight)

Date (local): YYMMDD

I. Inspect sonde

- 1. Discard batteries
- 2. Inspect sonde for physical damage
- 3. Ozone-free (NO O3) air - 10 min
- 4. Check pump current
- 5. Pump pressure measurement
- 6. Pump vacuum measurement
- 7. Rinse cathode and anode chambers
- 8. Fill with distilled water
- 9. Wait 1 hour
- 10. Repeat
- 11. Wait 1 - 3 days
- 12. Run HI O3 air for 30 min - bypass cell

III. Charge chambers with solutions

- 13. Charge cathode cell (3 cc)
- 14. Wait 15 minutes
- 15. Charge anode cell (1.5 cc)
- 16. Rinse syringes
- 17. Run NO O3 air for 20 minutes

IV. Storage

- 18. Short ECC sensor leads
- 19. Add cathode solution (2.5 cc)
- 20. Re-pack sonde and store; rinse syringes

OPERATOR _____

SONDE # _____

CURRENT 55 - 110 mA

PRESSURE > 8 psi

VACUUM > 15 in Hg

BACKGRND < 0.5 mA

RESPONSE 25 - 75 s

Flight Preparation (0 - 1 day before flight)

Date (local): YYMMDD

I. Balloon Track shows safe trajectory

II. Recharge chambers with solutions

- 1. Inspect cathode cell for salt
- 2. Remove cathode cap/rinse cathode tubing
- 3. Remove anode cap and solution.
- 4. Add 1 - 2 cc of cathode solution
- 5. Remove cathode solution.
- 6. Charge cathode cell (3 cc)
- 7. Wait 15 minutes
- 8. Charge anode cell (1.5 cc)
- 9. Rinse syringes

IV. Connect radiosonde

- 14. Connect radiosonde
- 15. Set and record radiosonde frequency

V. Setup STRATO

- 16. Run STRATO for initial setup
- 17. GPS connection test (if necessary)
- 18. Ozone-free (NO O3) air - 10+ min
- 19. Final ozone background measurement

VI. Prepare for launch

- 20. Mount pump battery
- 21. Load ozonesonde into flight box
- 22. Attach radiosonde to flight box
- 23. Tape box closed & attach notices

III. Test operations

- 10. Sensor background current - 10 min
- 11. Sensor response time - 5 min
- 12. Record lab Press., Temp., RH
- 12. Air flow rate measurement - 5 min
- 13. Dry/wet flow rate (if necessary)

OPERATOR _____

FLOW RATE 20 - 35 s

LAB TEMP _____ °C

LAB RH _____ %

Avg. dry flow _____ s

Avg. wet flow _____ s

Flow Correction 00x(wet-dry)/d %

RESPONSE < 30 s

BACKGND #1 < 0.1 µA

FINAL BACKGND < 0.08 µA

Dry Air Flow Rate Times

Trial 1: _____	s
Trial 2: _____	s
Trial 3: _____	s
Trial 4: _____	s
Trial 5: _____	s

Wet Air Flow Rate Times

Trial 1: _____	s
Trial 2: _____	s
Trial 3: _____	s
Trial 4: _____	s
Trial 5: _____	s

RADIOSONDE

TYPE _____

SERIAL NO. _____

FREQUENCY _____ MHz

Launch (begin 30 - 45 min before flight)

Launch Info

Date (local): YYMMDD

I. Initial launch preparations

- 1. Connect GPS power (if necessary)
- 2. 30-min. launch notifications
- 3. Prepare launch site
- 4. Activate wet-cell battery (if necessary)
- 5. Assemble balloon train

Elevation (m): _____

Longitude: _____

Latitude: _____

Time Zone: _____

Sfc. Pressure: Gnd. Sta. _____ hPa
Sonde _____ hPa

Sfc. Temp.: Gnd. Sta. _____ °C
Sonde _____ °C

Sfc. RH: Gnd. Sta. _____ %
Sonde _____ %

Sfc. O3: Gnd. Sta. _____ ppt
Sonde _____ ppt

OPERATOR _____

Sky Conditions _____

Date (GMT) YYMMDD

Time (GMT) HH:MM

Time (Local) HH:MM

Balloon Type _____

Balloon Mass _____ g

Weighoff _____ g

Fill Pressure _____ kPa

Burst Height _____ km

Burst Press. _____ hPa

Microtops 1 _____ DU

Microtops 2 _____ DU

Satellite Col. O3 _____ DU

Sfc. O3 1 _____ ppbv

Sfc. O3 2 _____ ppbv

II. Surface measurements

- 6. Start STRATO
- 7. Connect radiosonde battery
- 8. Connect ozonesonde battery
- 9. Verify data transmission
- 10. Sfc press/temp/RH measurements
- 11. Sfc ozone measurement

III. Launch

- 12. 5-min. launch notifications
- 13. Start audio recording of flight data
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- 15. Final data checks: O3, T, RH, Press, GPS
- 16. Verify antenna pre-amp is "On."
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- 18. Verify STRATO launch detection (< 1 min)
- 19. Take Microtops measurements
- 20. Get launch-time surface O3 measurement
- 21. Update supply inventory list
- 22. Put away launch equipment

IV. Post-Flight

- 23. Stop data recorder
- 24. Stop STRATO - hit ESC w/o floppy
- 25. Turn off pre-amp & stow antenna
- 26. Scan prepsheet
- 27. Email data files & prepsheet
- 28. File prepsheet
- 29. Verify GPS alt. matches press. alt.
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FLIGHT NOTES: