

**OVERVIEW OF UNIVERSITY OF WASHINGTON CV-580 RESEARCH FLIGHTS
FOR SAFARI-2000
(10 AUGUST-18 SEPTEMBER 2000)**

DATE (2000)	U.W. FLIGHT #	PERIOD (UTC)	GENERAL LOCATION	MAIN MEASUREMENTS
10 Aug.	1810	1127-1522 (3.92 hr)	In quadrant northwest of Pietersburg, South Africa, out to about 90 miles from Pietersburg.	<ul style="list-style-type: none"> • Physical and chemical measurements above and in boundary layer.
14 Aug.	1811	1026-1132 (1.10 hr)	Pietersburg to Lanseria, South Africa.	<ul style="list-style-type: none"> • Measurements en route.
14 Aug.	1812	1216-1505 (2.82 hr)	About 80 miles northwest of Johannesburg, South Africa.	<ul style="list-style-type: none"> • Physical and chemical measurements in boundary layer.
14 Aug.	1813	1551-1649 (0.97 hr)	Lanseria to Pietersburg, South Africa.	<ul style="list-style-type: none"> • Measurements en route.
15 Aug.	1814	0655-1115 (4.33 hr)	Pietersburg to Skukusa (in Kruger National Park), South Africa. Then to about 30 miles west of Skukusa. Return to Pietersburg.	<ul style="list-style-type: none"> • Measurements en route in free troposphere (at 9,000 ft). • 100 ft runs beneath TERRA overpass (at 0823 UTC) at Skukuza. • Physical and chemical measurements at 3,000 ft just west of Skukuza. • Measurements of smoke from two grass fires and some cumulus sampling 30 nm west of Skukusa.

DATE (2000)	U.W. FLIGHT #	PERIOD (UTC)	GENERAL LOCATION	MAIN MEASUREMENTS
17 Aug.	1815	0701-1213 (5.20 hr)	Pietersburg to south and central Kruger National Park, South Africa. Return to Pietersburg.	<ul style="list-style-type: none"> • Measurements en route at 10,000 ft. • Vertical profile from 10,000 ft to 100 ft in Kruger National Park. • Physical and chemical measurements at 4,000 ft. • Measurements in two smoke plumes (flaming and smoldering combustion). • Measurements on return to Pietersburg.
18 Aug.	1816	0802-1339 (5.62 hr)	Pietersburg to Medikwe Game Reserve on border of South Africa and Botswana, and return.	<ul style="list-style-type: none"> • Measurements en route. • Physical and chemical measurements of smoke from prescribed fire in Medikwe Game Reserve.
20 Aug.	1817	0657-0705 (0.13 hr)	Flight cancelled on Pietersburg runway.	N/A
20 Aug.	1818	0713-0819 (1.10 hr)	Pietersburg toward South Africa-Botswana border and return. (Flight terminated prematurely due to radio communication problem with ATC.)	<ul style="list-style-type: none"> • Physical and chemical measurements in ambient haze en route.

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20 Aug.	1819	1124-1541 (4.28 hr)	Pietersburg to Medikwe Game Reserve on border of South Africa and Botswana, and return.	<ul style="list-style-type: none"> • Physical and chemical measurements in smoke from prescribed fire in Medikwe. • Measurements of ambient smoke and haze near Botswana/South Africa border.
22 Aug.	1820	0658-1235 (5.62 hr)	Pietersburg to Skukusa (in Kruger National Park), South Africa, and return to Pietersburg via Phalaborwa.	<ul style="list-style-type: none"> • Vertical profile over Skukuza Airport with ER-2 and TERRA overpasses. • BRDF near Skukuza. • BRDF near Mopane trees (??) in northern Kruger National Park.
23 Aug.	1821	1138-1448 (3.17 hr)	In vicinity of Pietersburg.	<ul style="list-style-type: none"> • Intercomparisons of aerosol and state parameters with South African Aerocommanders and with rawinsonde launched from Pietersburg Gateway Airport.
24 Aug.	1822	0638-1130 (4.87 hr)	Pietersburg, South Africa, to Inhaca Island, Mozambique.	<ul style="list-style-type: none"> • Detailed vertical profile over Inhaca Island, Mozambique, with Terra and ER-2 overpasses.
29 Aug.	1823	0822-1114 (2.87)	Pietersburg to border between South Africa and Zimbabwe, and return.	<ul style="list-style-type: none"> • Measurements en route during outbound and return legs. • Physical and chemical measurements in well mixed boundary layer at 9,500 ft and at 5,300 ft near South Africa/Zimbabwe border. • BRDF of uniform shrub near South Africa/Zimbabwe border. • Vertical profile near South Africa/Zimbabwe border. • Some cloud penetrations near South Africa-Zimbabwe border.

DATE (2000)	U.W. FLIGHT #	PERIOD (UTC)	GENERAL LOCATION	MAIN MEASUREMENTS
29 Aug.	1824	1245-1540 (2.92 hr)	Pietersburg to Skukusa, Kruger National Park, South Africa, and return.	<ul style="list-style-type: none"> • BRDF centered on Skukuza tower. • Measurements of smoke from smoldering fire in Kruger National Park. • 200 ft agl run over plantations on high veldt.
31 Aug.	1825	0842-1421 (5.65 hr)	Pietersburg, South Africa, to central Mozambique coast. North along Mozambique coastline to west of Beria. Return to Pietersburg.	<ul style="list-style-type: none"> • Measurements at several levels on transit legs. • Run at 100 ft along Mozambique coastline. • Measurements of smoke at several distances downwind from smoldering fire west of Beria. • Good measurements in haze and smoke on return flight.
1 Sept.	1826	0532-1108 (5.60 hr)	Pietersburg, South Africa, to Kaoma, Zambia, to Kasane, Botswana.	<ul style="list-style-type: none"> • Measurements en route to Kaoma. • Detailed measurements on prescribed Miombo burn near Kaoma, Zambia. • Measurements en route from Kaoma to Kasane.
1 Sept.	1827	1229-1241 (0.20 hr)	Did not take off from Kasane, Botswana, due to recall by ATC.	—

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1 Sept.	1828	1329-1551 (2.37 hr)	Kasane, Botswana, to Pietersburg, South Africa.	<ul style="list-style-type: none"> • Measurements en route from Kasane to Pietersburg.
2 Sept.	1829	0736-1334 (5.97 hr)	Pietersburg, South Africa, to Maun, Botswana, and return to Pietersburg.	<ul style="list-style-type: none"> • BRDF centered on Maun tower. • Vertical profile under TOMS at Maun tower.
3 Sept.	1830	0702-1238 (5.60 hr)	Pietersburg, South Africa, to Sua Pan, Botswana, and return.	<ul style="list-style-type: none"> • BRDF over Sua Pan and grass. • Vertical profile over Sua Pan parabola with TERRA overpass. • Measurements at several altitudes on transit legs.
5 Sept.	1831	0838-1413 (5.58 hr)	Pietersburg, South Africa, to Kaoma, Zambia, to Kasane, Botswana, via Senanga, Zambia.	<ul style="list-style-type: none"> • Measurements from Pietersburg to Kaoma, Zambia. • Measurements on smoke from prescribed burn of Diombo near Kaoma, Zambia. • Measurements en route to Kasane with low-level pass over Senanga, Zambia.
6 Sept.	1832	0700-1058 (3.97 hr)	Kasane, Botswana, to about 20 miles north of Mongu, Zambia. Return to Kasane.	<ul style="list-style-type: none"> • Low-level run from Senanga to Mongu to about 20 nm north of Mongu. • Measurements en route back to Kasane. • BRDF over Mongu tower. • Vertical profile over Mongu airport.

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6 Sept.	1833	1133-1354 (2.35 hr)	Kasane, Botswana, to Pietersburg, South Africa.	<ul style="list-style-type: none"> • Measurements in boundary layer from Kasane to Pietersburg.
7 Sept.	1834	0755-1220 (4.42 hr)	Pietersburg to Timbavati Game Reserve, near Kruger National Park, South Africa, to Phalaborwa, and return to Pietersburg.	<ul style="list-style-type: none"> • Extensive measurements on large prescribed fire at Timbavati, South Africa, with TERRA and ER-2 overflights (see AirMISR imagery). • Two intercepts of plume from Phalaborwa copper mine. • Two sets of BRDFs on Mopane trees.
10 Sept.	1835	0558-1025 (4.45 hr)	Pietersburg, South Africa, to Walvis Bay, Namibia.	<ul style="list-style-type: none"> • Measurements en route.
11 Sept.	1836	0835-1222 (3.78 hr)	Walvis Bay, Namibia, to off central Namibian coast; then to Kuisab Desert. Return to Walvis Bay.	<ul style="list-style-type: none"> • Underflew Terra and ER-2 in thin, broken stratus off central Namibia coast. • Vertical profile to 12,200 ft off central Namibia coast for sunphotometer and in situ comparisons. • Two sets of five CAR turns for BRDF measurements of "red" sand in Kuisab Desert, south of Walvis Bay.

DATE (2000)	U.W. FLIGHT #	PERIOD (UTC)	GENERAL LOCATION	MAIN MEASUREMENTS
13 Sept.	1837	0826-1416 (5.83 hr)	Walvis Bay, Namibia, to off Namibian coast. Return to Walvis Bay.	<ul style="list-style-type: none"> • Measurements below, above and in stratus off Namibian coast under Terra and ER-2. • Vertical profile, with physical and chemical measurements, from cloud top to 16,800 ft.
14 Sept.	1838	0800-1232 (4.53 hr)	Walvis Bay, Namibia, to off west coast of South Africa. Return to Walvis Bay.	<ul style="list-style-type: none"> • Measurements on post-frontal cumulus congestus, including inflow, outflow, and below cloud base measurements. • Measurements of effluents from two freighter ships. • Vertical profile to 12,200 ft for sunphotometer and in situ measurements. • Measurements through dust storm on descent into Walvis Bay.
16 Sept.	1839	0709-1245 (5.60 hr)	Walvis Bay, Namibia, to Etosha National Park, Namibia. Return to Walvis Bay.	<ul style="list-style-type: none"> • BRDF of white Etosha pan (at 19.05°/15.96°) and of Mopane trees (at 19.18°/15.66°) in Etosha National Park. • Vertical profile from 200 ft to 15,750 ft over ground-based sunphotometer site in Etosha (at 19°11'/15°55'). • Measurements in and below small cumulus clouds near Walvis Bay.

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18 Sept.	1840	????	Walvis Bay, Namibia, to Pietersburg, South Africa.	<ul style="list-style-type: none"> • No measurements en route.

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