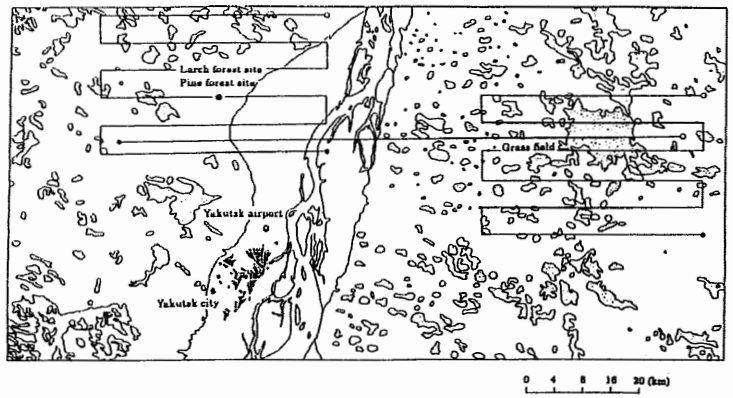
シベリアのヤクーツク周辺で行われた航空機による地表面の分光放射とビデオ観測

鈴木力英

■ AIRCRAFT SPECIFICATION

Russian research aircraft　ILYUSHIN-18

- flight level range:　from 100 to 10000 m
- working speed range: from 350　to 650 km/h
- maximum duration of the flight (at the heights of 100 - 1000 m): 8 hours
- maximum start mass:　64000 kg
- length of aircraft:　36 m
- wing spread: 37.5 m
- number of engines:　4 turbo
- number of crew: 5 members



第３回 千葉大学 CEReS 環境リモートセンシングシンポジウム
2000 年 12 月 12 日(火)

シベリアのヤクーツク周辺で行われた航空機による地表面の分光放射とビデオ観測

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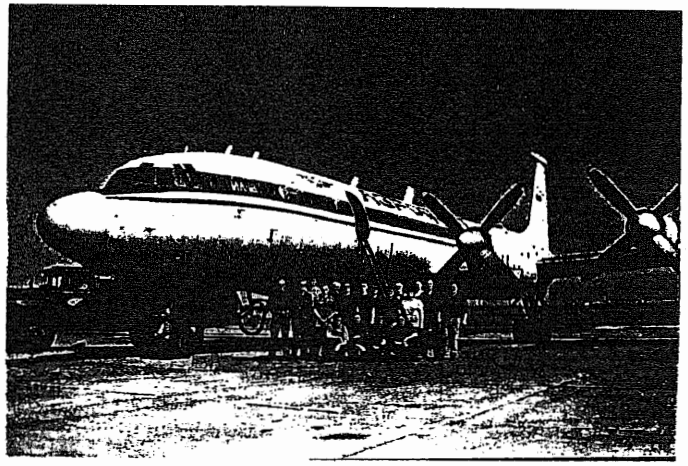


INSTALLED DEVICES

- GPS
- System for measuring average wind speed and wind direction and air temperature
- Device for measuring dew-point temperature
- System for measuring high response fluctuations of the horizontal, longitudinal with respect to flight direction and vertical components of wind speed
- High response temperature sensor for measuring temperature fluctuations
- High response humidity sensor for measuring water vapor fluctuations
- High response closed-path CO_2/H_2O gas analyzer
- TEAC recorder
- Infrared radiometer thermometer
- Spectrometer "FieldSpec FR" for measuring the spectral characteristics
- Video camera for recording the image of underlying ground surface.

Flight Schedule

- Pre-snowmelt season: April 24, 2000
- Snowmelt season: May 1, 9, 2000
- Pre-foliation season: May 12, 20, 2000
- Foliating season: June 1, 5, 2000
- Summer (foliated) season: June 9, 19, 2000

Total 9 days

List of Available Spectral Data observed by Airborne and Surface Observations

Spectral observation (350-2,500nm) was carried out using 2 sets of FieldSpec FR at aircraft and surface (for the white reference measurement).The sampling rate of the spectral was 10 seconds (airborne) and 1 minute (surface).

April 24 airborne 09:32 — 14:53 (1,493)
surface 08:56 — 14:44 (284) Spasskaya Pad

May 01 airborne 09:15 — 14:12 (1,688)
surface 08:59 — 15:43 (395) Spasskaya Pad

May 09 airborne 09:21 — 14:12 (1,598)
surface 09:00 — 15:31 (313) Spasskaya Pad

May 12 airborne 09:18 — 14:12 (1,625)
surface 08:47 — 15:04 (325) Spasskaya Pad

May 20 airborne 09:22 — 14:10 (1,584)
surface 08:50 — 15:15 (316) Spasskaya Pad

June 01 airborne 09:23 — 14:07 (1,557)
surface - none (Spasskaya Pad)

June 05 airborne 09:18 — 13:51 (1,496)
surface 09:11 — 14:56 (320) IBPC building

June 09 airborne 09:20 — 13:49 (1,460)
surface 08:40 — 14:37 (320) IBPC building

June 19 airborne 09:24 — 13:56 (1,546)
surface 08:37 — 14:29 (336) Spasskaya Pad

Total of airborne measurement: 14,047 samples
Total of surface measurement: 2,609 samples

Video Record List by Airborne Observation

Video images were taken by SONY TRV-900 with no interlace mode on MiniDV video cartridge(60min/1-cartridge). The video camera was set at the aircraft bottom directing vertically downward.

April 24 09:27 — 15:02 (6 cartridge: 5h 35m)*

May 01 09:10 — 14:22 (5 cartridge: 5h 12m)*

May 09 09:23 — 14:23 (5 cartridge: 5h 00m)*

May 12 09:10 — 14:23 (5 cartridge: 5h 13m)*

May 20 09:13 — 12:22, 13:25 — 14:23 (4 cartridge: 4h 07m)*

June 01 09:15 — 14:17 (5 cartridge: 5h 02m)

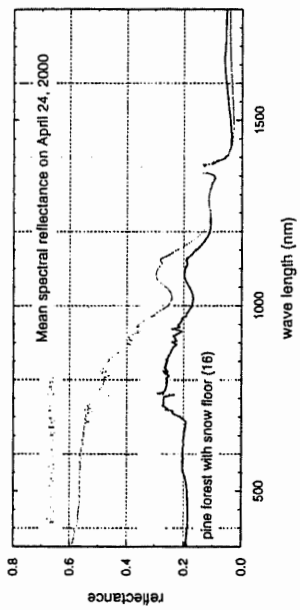
June 05 09:10 — 14:01 (5 cartridge: 4h 51m)*

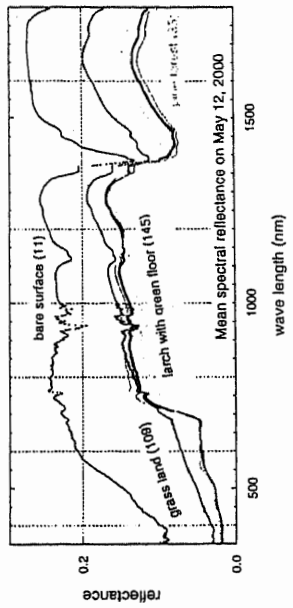
June 09 09:09 — 13:59 (5 cartridge: 4h 50m)*

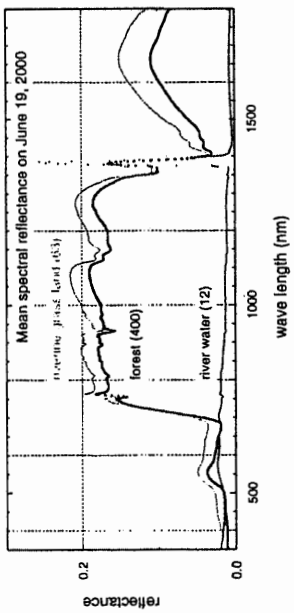
June 19 09:15 — 14:06 (5 cartridge: 4h 51m)

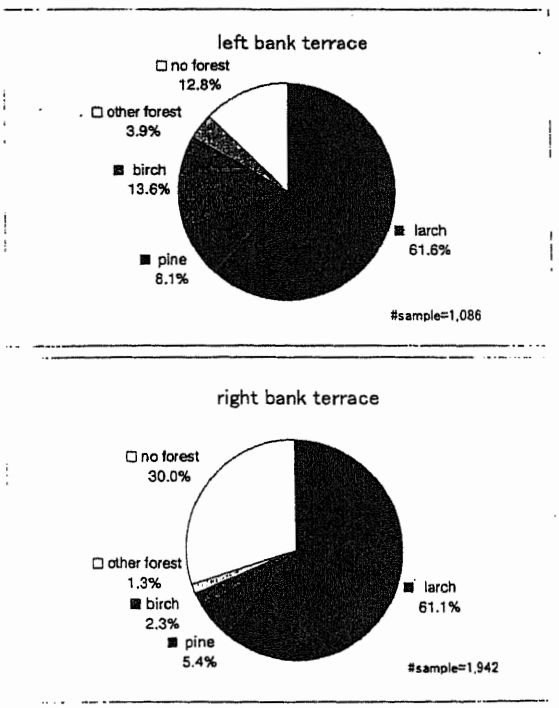
Total: 44h 41m

* Video images from aircraft window are available.









Statistics based on the video images
on 9th,12th,and 20th May 2000

Clear Sky Ratio (%)

	left	riverine	right	average
April 24	95.8	100.0	100.0	98.9
May 1	100.0	100.0	95.7	97.7
May 12	100.0	100.0	98.7	99.4
May 20	43.4	91.4	30.8	49.0
June 5	57.4	94.6	48.9	60.9
June 19	84.4	100.0	100.0	96.0
Average	78.9	97.7	81.5	84.2