Infrared Sky Camera: The Production Model

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SkyCamIR Principles

- Clouds are detected by their IR radiation
- Images acquired with 10 micron thermograph
- Wavelength is centered on ‘window’ in H$_2$O absorption band
- Works day or night because Sun is a weak IR source
Prototype Instrument
Instrument Development and Performance

- Cloud maps agree closely with visual sky assessment
- No problems with IR thermograph after 2 years and $10^6$ images
- High speed system produces full map in 15 seconds
- Electroplated mirror selected from several candidate types
Instrument Calibration

- Self reading of ambient temperature assures accurate cloud maps
- No chopper or other external moving parts
- Calibration to –50° C permits operation in almost any climate
- Geometric calibration gives sky condition at any azimuth/elevation
Production Model

• Manufactured by Raytheon Engineering & Production
• New support structure for better optical alignment
• Thermograph sealed in NEMA-4 enclosure
• Electroplated mirror insures long life
• Can be shipped anywhere
• Easy to assemble and operate
Production Model Photos
Features of SkyCamIR Production Model

• Reliable day- and night-time sky transparency information from sealed 10 µ thermograph
• New support structure for better optical alignment and accurate geometric calibration
• Durable electroplated mirrors insure long life
• Easy to ship and setup in the field
• Software that is user friendly and adaptable