


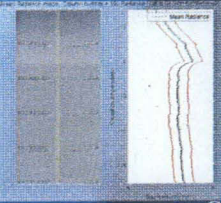
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
Method to characterize Background IR signature

Daniel St-Germain et Denis Dion
[DRDC-Valeport]


Melanie Dutil
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[Aeris Avionics]

Spectral and Geospatial Exploitation Section
May 28th 2009

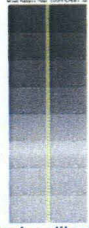


Defence Research and Development Canada / Recherche et développement pour la défense Canada 

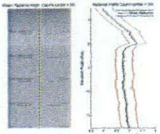
This talk presents IR backgrounds characterization methodology and preliminary results.




Miramir 2008 trial



Mosaic calibration



Preliminary results



Backgrounds measurements were acquired at different elevation.

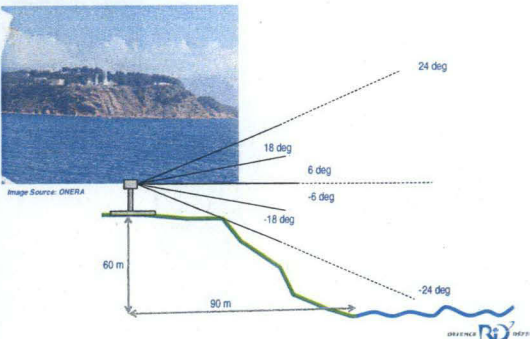



Image Source: ONERA



LWIR and MWIR images were saved on magnetic tape and digitized afterward.

	ThermoVision3000 (LWIR)	Radiance (MWIR)
Spectral band	8.0-9.2 μm	3-5 μm
Sensor type	QWIP	InSb
Sensor Size	640 x 480	256 x 256
Narrow FOV	1.3° x 0.96°	2.2° x 2.2°
Video outputs	NTSC	NTSC
Video compression	dvsd	dvsd
Image size	720 x 480	720 x 480






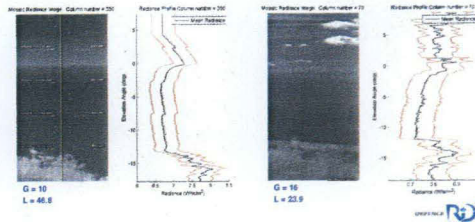
Image calibration methodology



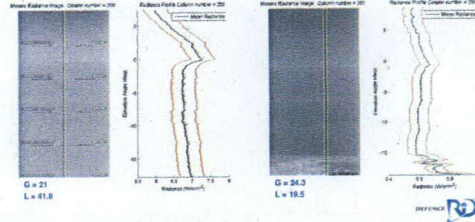
"Mosaicing technique and offset"



May 15th, 2008 7h34



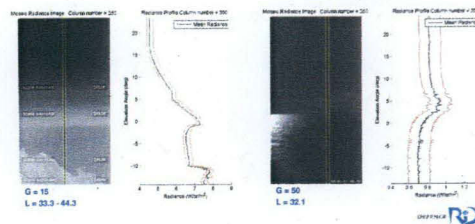
May 15th, 2008 14h09



May 22nd, 2008 6h42



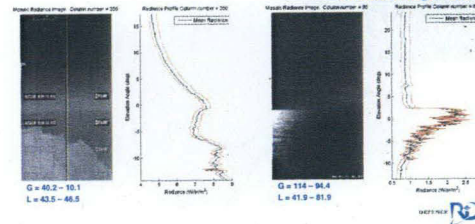
Visible image: 6h45



May 22nd, 2008 6h53



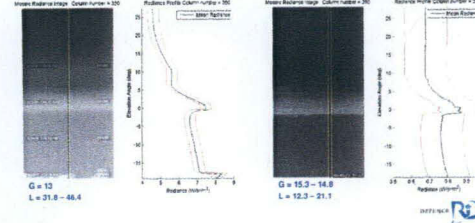
Visible image: 6h54



May 22nd, 2008 7h12



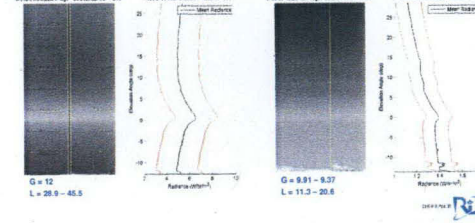
Visible image: 7h11

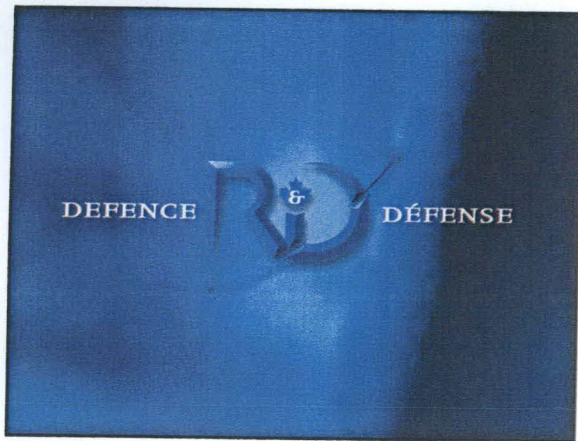


May 22nd, 2008 13h28



Visible image: 13h50





Images were calibrated

$$Im1 = \frac{1}{A} (Im - N_L) \cdot Gain + C \cdot Level + T_0$$

$$Radianc = \frac{(Im1 - \min Rad)}{(\max Rad - \min Rad)}$$

$$Radianc_{16} = (2^{16} - 1) \cdot Radianc$$

