

Sampled Microwave Imaging

		SAR	MIRIAH
Depends on architecture – (see this link)	Number of Power-Apertures (P.A.) in series	1	2
	For Finer Resolution	Large Bandwidth (B/W)	1 st P.A. Very Small B/W, 2 nd P.A. Extremely Large B/W
	Bandwidth	Large	Extremely Large
	Spectral Resolution	Extremely poor	Superior
	Response Time	Fast	Slow
	Spatial Resolution	Fair	Superior
	Swath Width	Tens of miles	<i>Thousands</i> of miles
	FOV (Field of View)	Covers counties	Covers <i>Continents</i>
	Throughput Time	Too slow for timely reaction to changes	Timely enough to control real time events (Tactical)
	Phase discrimination	Poor	Exceptional
	Hyper-Spectral	NO	YES
	RSI (Rotational Synthesis Imaging) Compatible	NO	YES
	Enables Very Large Sparse Phase Arrays for Optimum Phase Closure	NO	YES
	Max Coherence Time	Seconds	Minutes to Hours
Per Math Model results (see these hyper-links)	→ Coherent Gain	α (Counts) ¹ : $\approx 10^4$	α (Counts) ² : $\approx 10^{16}$
	→ SNR (Signal to Noise Ratio)	10^3	10^6 to 10^8
Altitude vs. Global Coverage	Very Low = Numerous Satellites	Very High = Few Satellites	
Revisit time including processing time, “store and forward” time, etc. @ best resolution	2 per week	10 per day	
Multi-access data onto Internet in Real Time	No	Yes	
Power Requirements vs. Satellite Size	Very Large	Very Small	
Coherent Technology	Is only 1-D	Is 2-D and 3-D	
Supply matches Demand	No	Yes	
Profitability	Large Deficit	Large Profit	

The Bottom Line

High Demand, and Supply
at Low Unit Cost =
Large Profit