

## HESPE Imaging Algorithm Evaluation Framework

Criteria		EM	CLEAN	PIXON	MEM-NJIT	VIS_FWDFIT	UV_SMOOTH
<b>General Characteristics</b>							
Robustness				slower	can crash		
Need for parameter optimization							
Error estimation							
Relative Speed							
<b>Photometry (typical situations)</b>							
Single sources	Location						Problem for source far away from map center
	Flux		depending on detectors				
	Size		Need to deconvolve beam or use rms scatter.		May overresolve		Optimum for large sources, may overestimate small ones
	Shape					if correct assumption	

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<b>Similar Double sources</b>	separation		depends on parameter choices	depends on detector combination	?? Why not as pixon		not good for large separations
	relative intensity						good, except at low count rates
	size		May overestimates		May underestimates		May overestimates
	relative size						
<b>Weak secondary compact source</b>	separation		parameters may need to be optimized		????		depends on detector choice
	relative intensity			except for weak statistics. Also depends of detector choice.	Except for GOOD statistics		depends on detector choice
	Detection of weak source	depends on detector choice	depends on detector choice		except for low statistics		depends on detector choice
<b>Extended + compact</b>				depends on detector choice - only at high statistics			depends on detector choice - only at high statistics

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<b>Statistical Regimes</b>							
Marginal (statistics dominated)			good for single and double sources	only for single source	good for single and double sources		only for single sources
Typical					except for extreme morphologies		
Excellent (Systematics limited)							
<b>Extreme morphologies</b>							
Noise-only			depends on detector choice		can crash		depends on detector choice
Long narrow source(s)				source breaks up except at high statistics	may break up the source	overestimates the width	
Many (>3) source components			depends on detector choice				depends on detector choice
Big loop			depending on the detector choice	source breaks up	source breaks up	depending on the detector choice	