

HyspIRI Coverage Requirement and Cloud Analyses

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2011 HyspIRI Workshop



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Image courtesy of Krish Dulal from Wikimedia

Probability of Cloud Free View

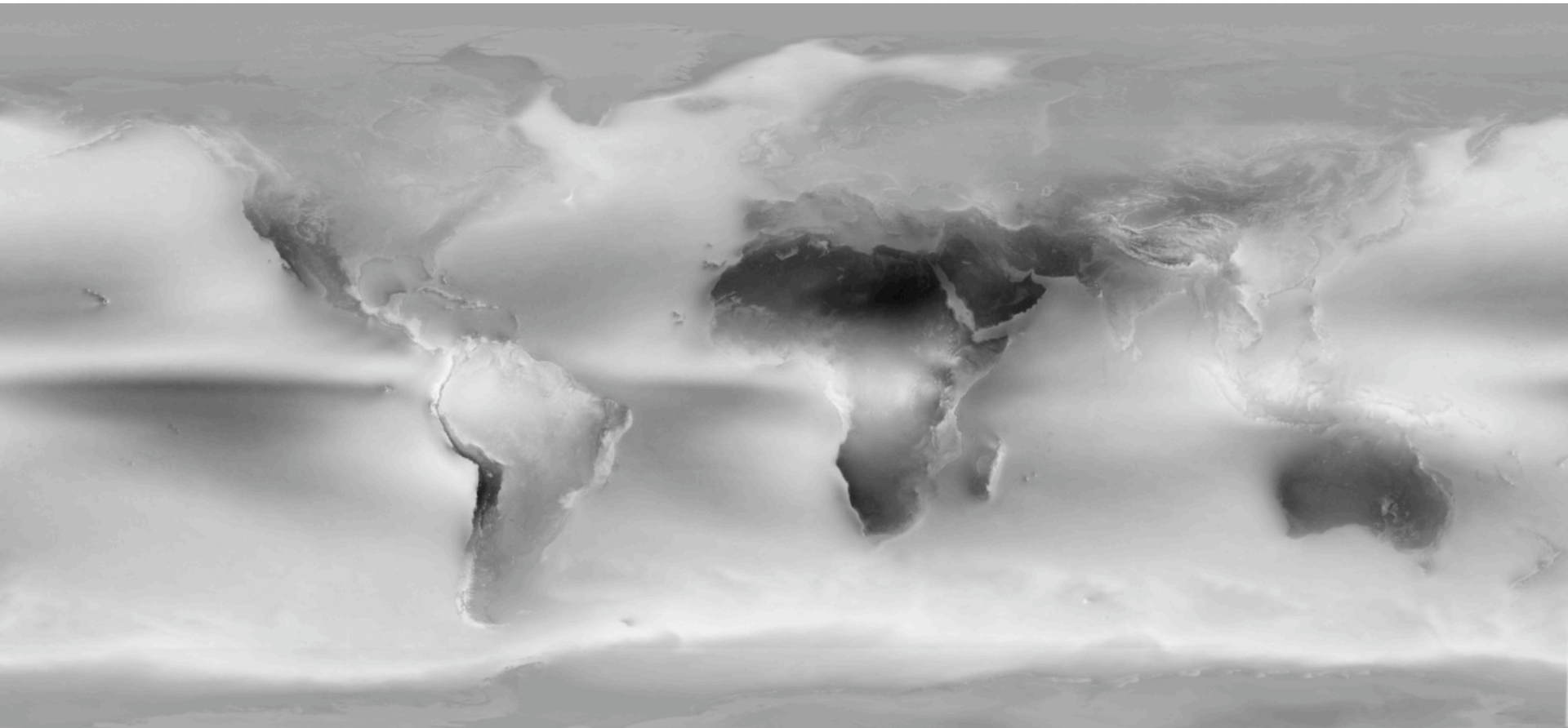
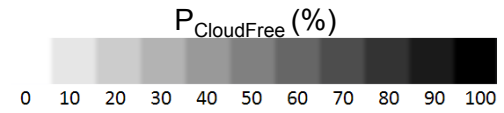
$$P_{CloudFree} = \frac{\#_{CloudFreeMODISViews}}{\#_{MODISViews}} (100)$$

MODIS Terra views clouds at same time of day as HypIRI since its orbit has a 10:30 AM descending node

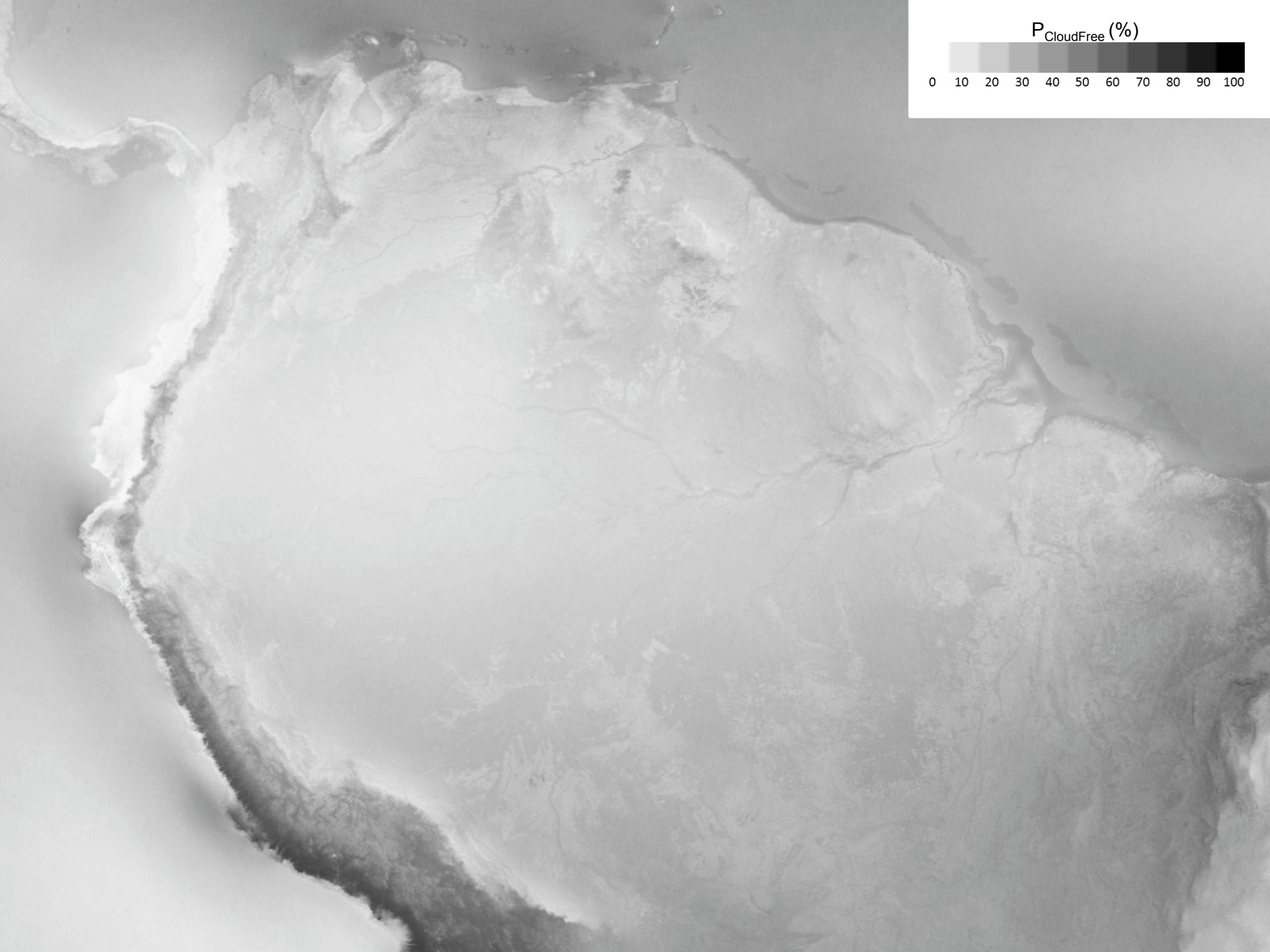
Cloud Free MODIS View

BIT FIELD	DESCRIPTION KEY	RESULT
1-2	Unobstructed FOV Confidence Flag	00 = cloudy 01 = uncertain 10 = probably clear 11 = confident clear

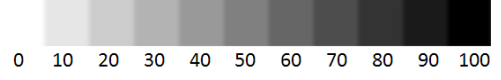
$P_{\text{CloudFree}}$



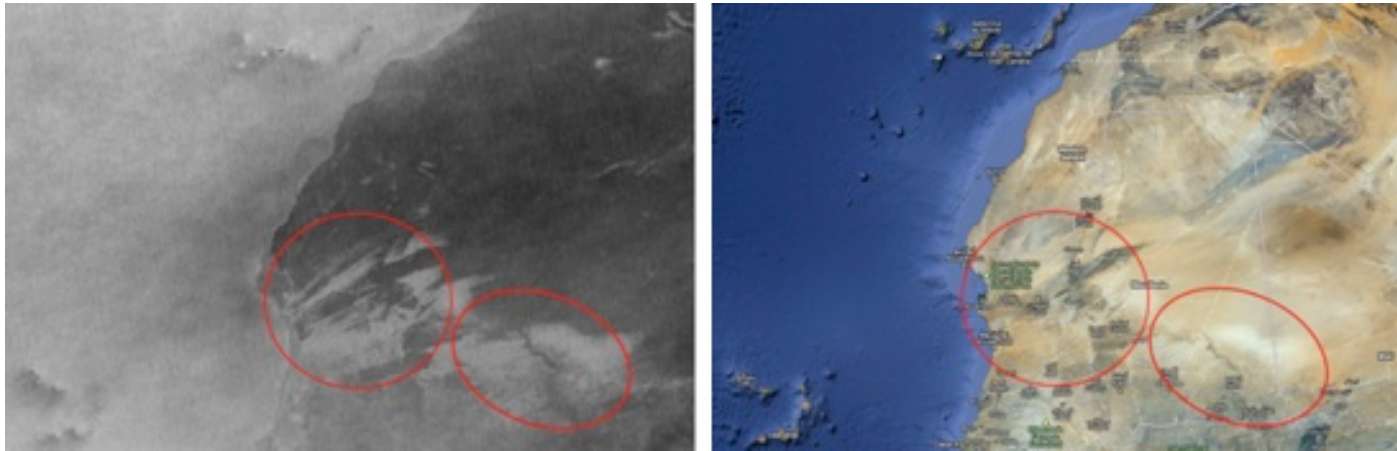
MODIS MOD35 Day 5km Cloud Mask from 2001-2007



$P_{\text{CloudFree}}$ (%)



Oddities in MOD35 Cloud Mask

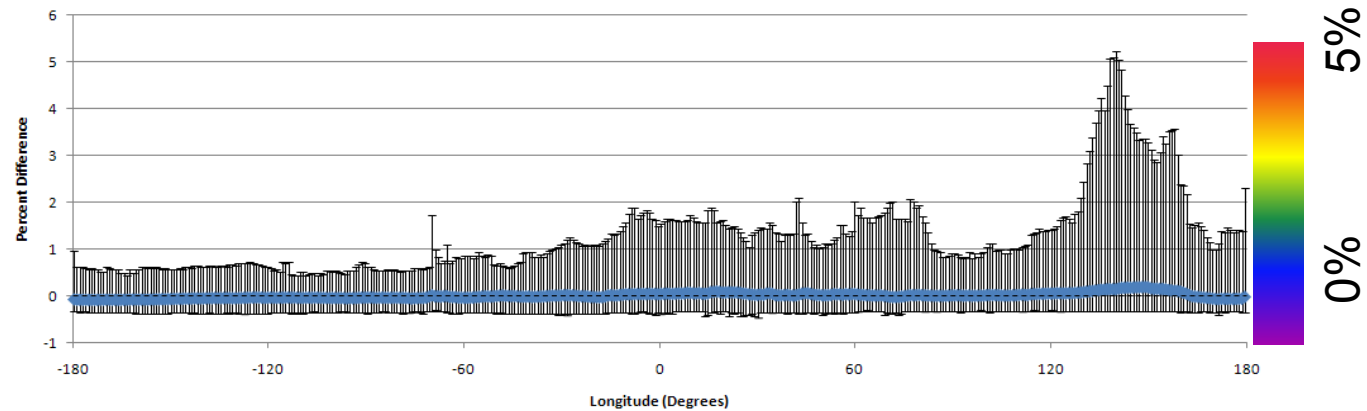
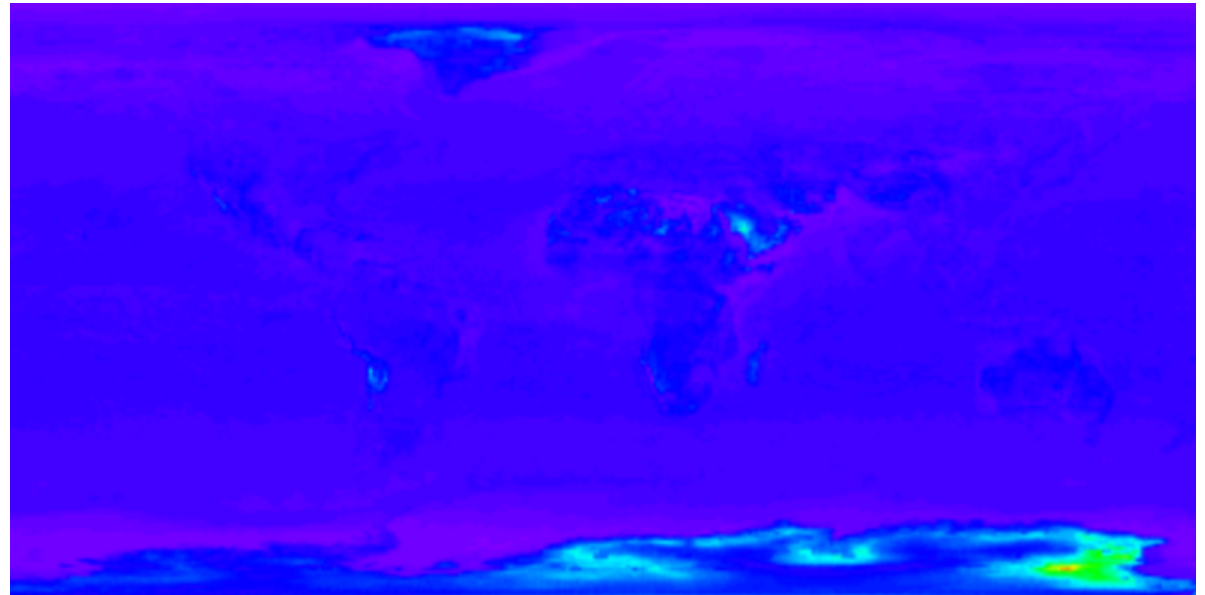
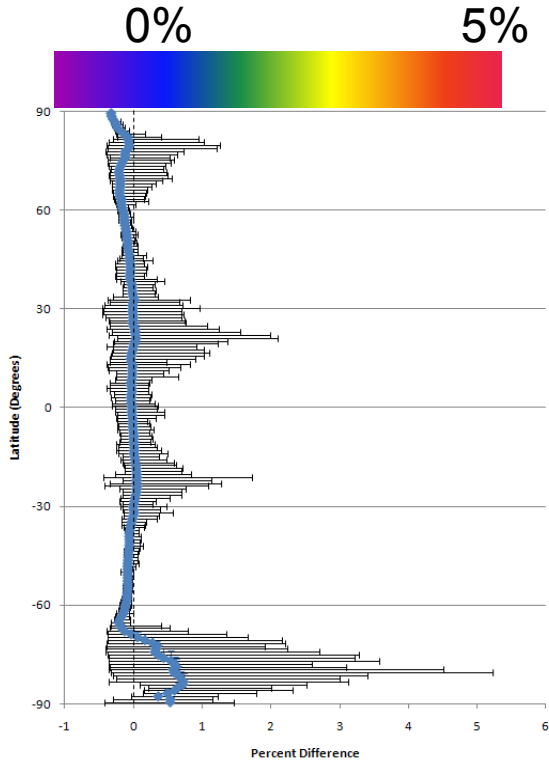


West Saharan sand showing up as habitual cloudiness



Clear cut areas of the Amazon showing up as habitual cloudiness

Correlation to MODIS Global Product



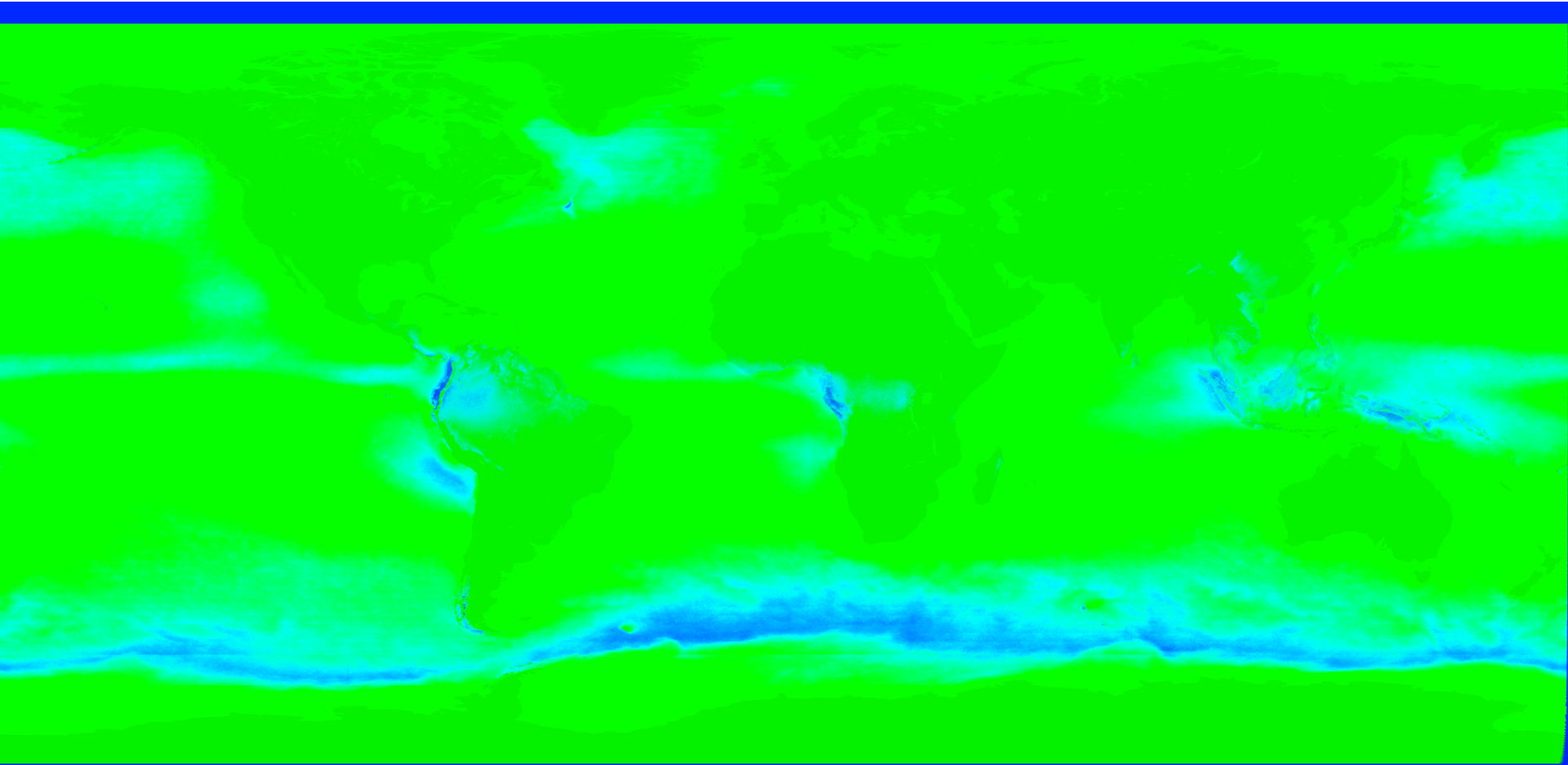
Number of Cloud Free Views by Each HypIRI Instrument

$$\#_{CloudFreeViews} = P_{CloudFree} \#_{ViewsByInstrument}$$

TIR Daytime Views



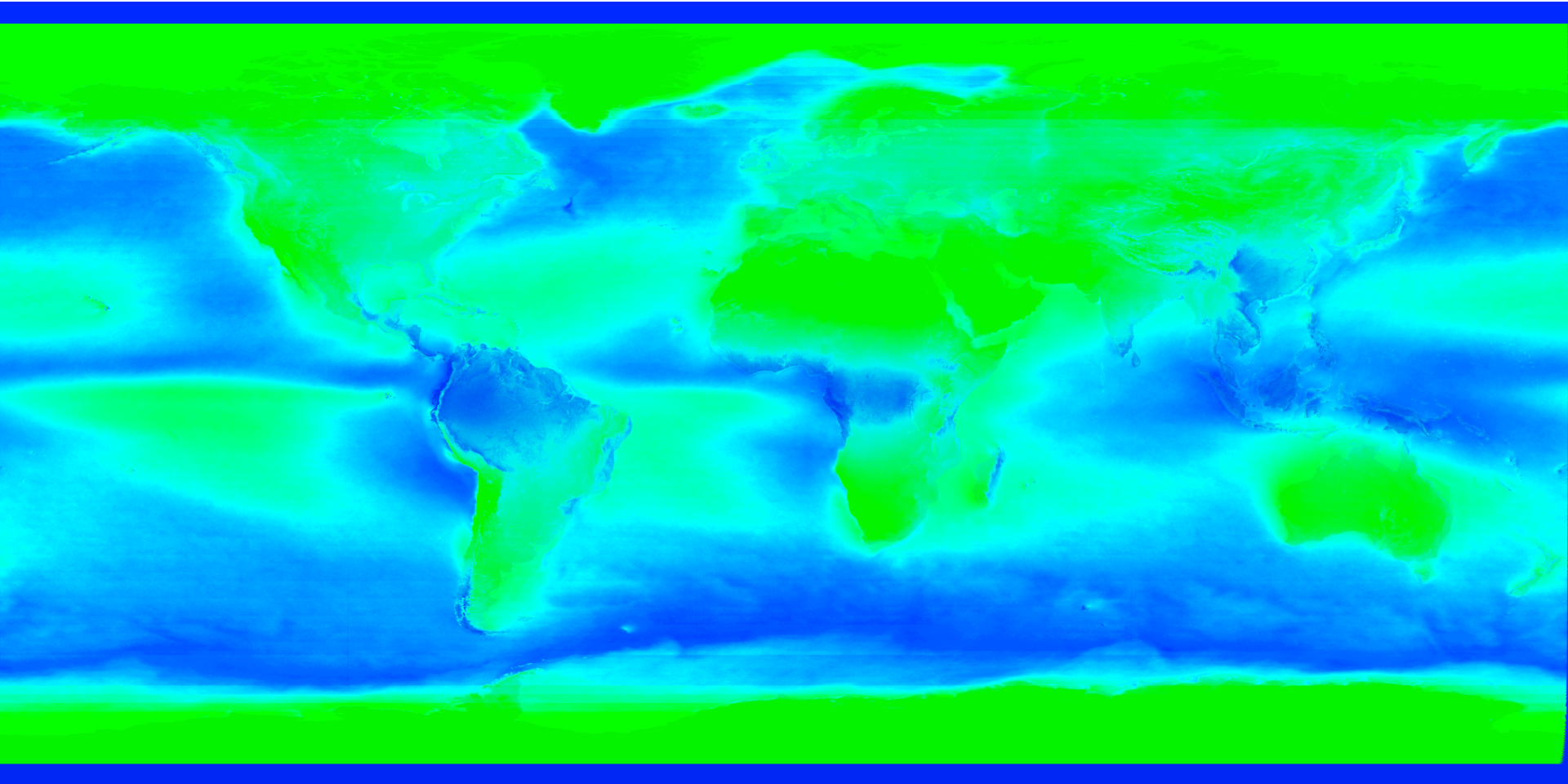
Yearly Cloud Free Views	0	12	24+
[Days Between Views]	[-]	[30]	[<15]

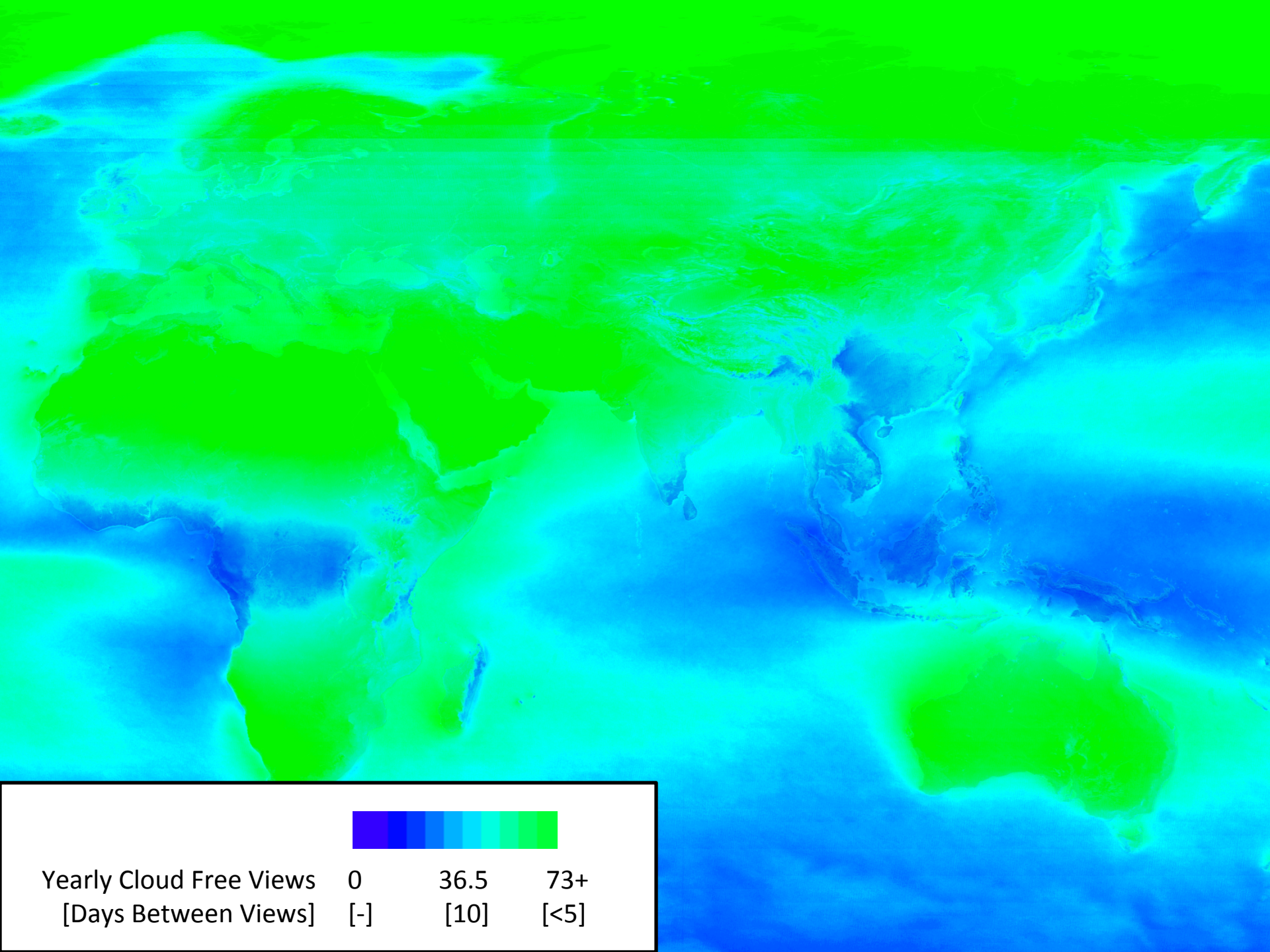


TIR Daytime Views



Yearly Cloud Free Views	0	36.5	73+
[Days Between Views]	[-]	[10]	[<5]



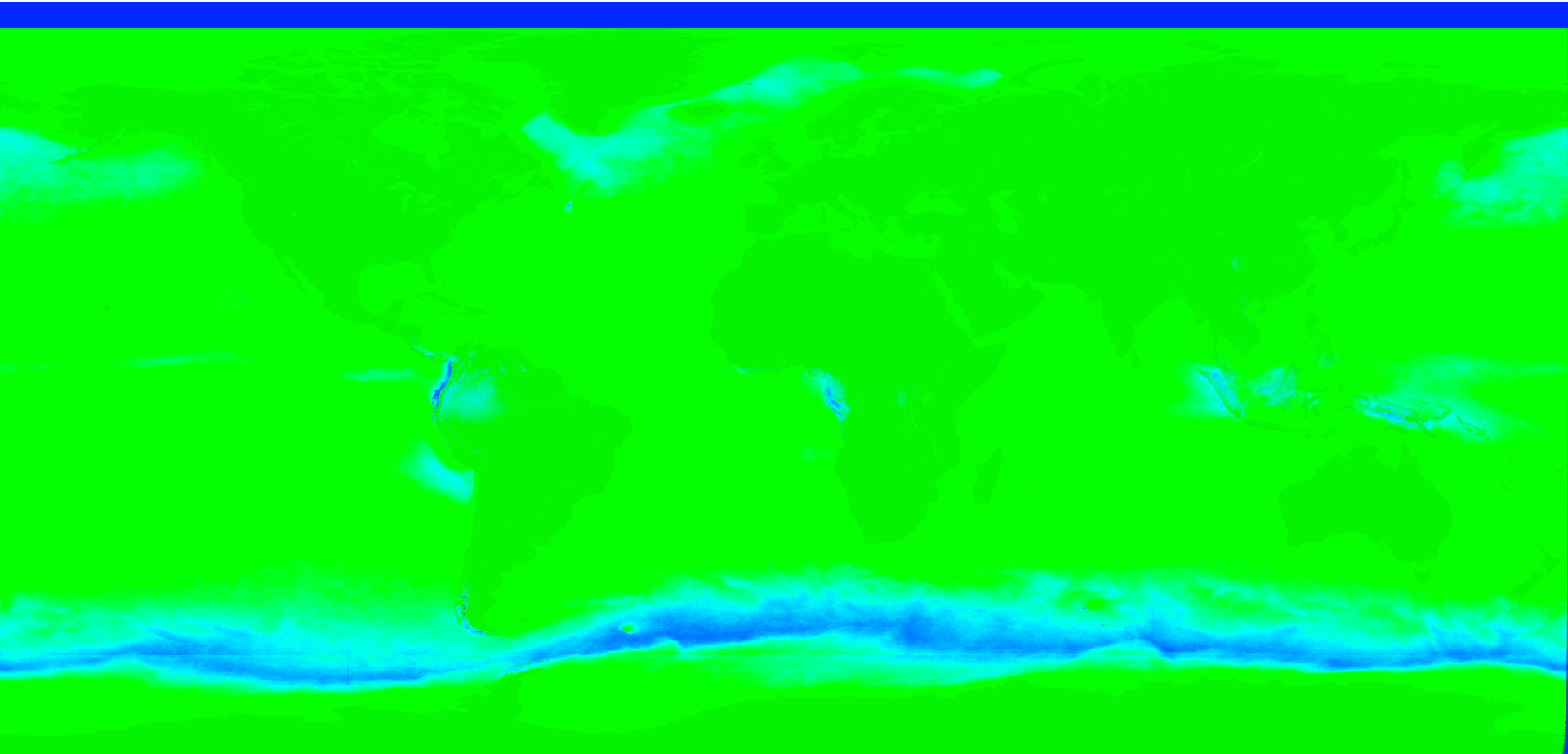


Yearly Cloud Free Views	0	36.5	73+
[Days Between Views]	[-]	[10]	[<5]

VSWIR



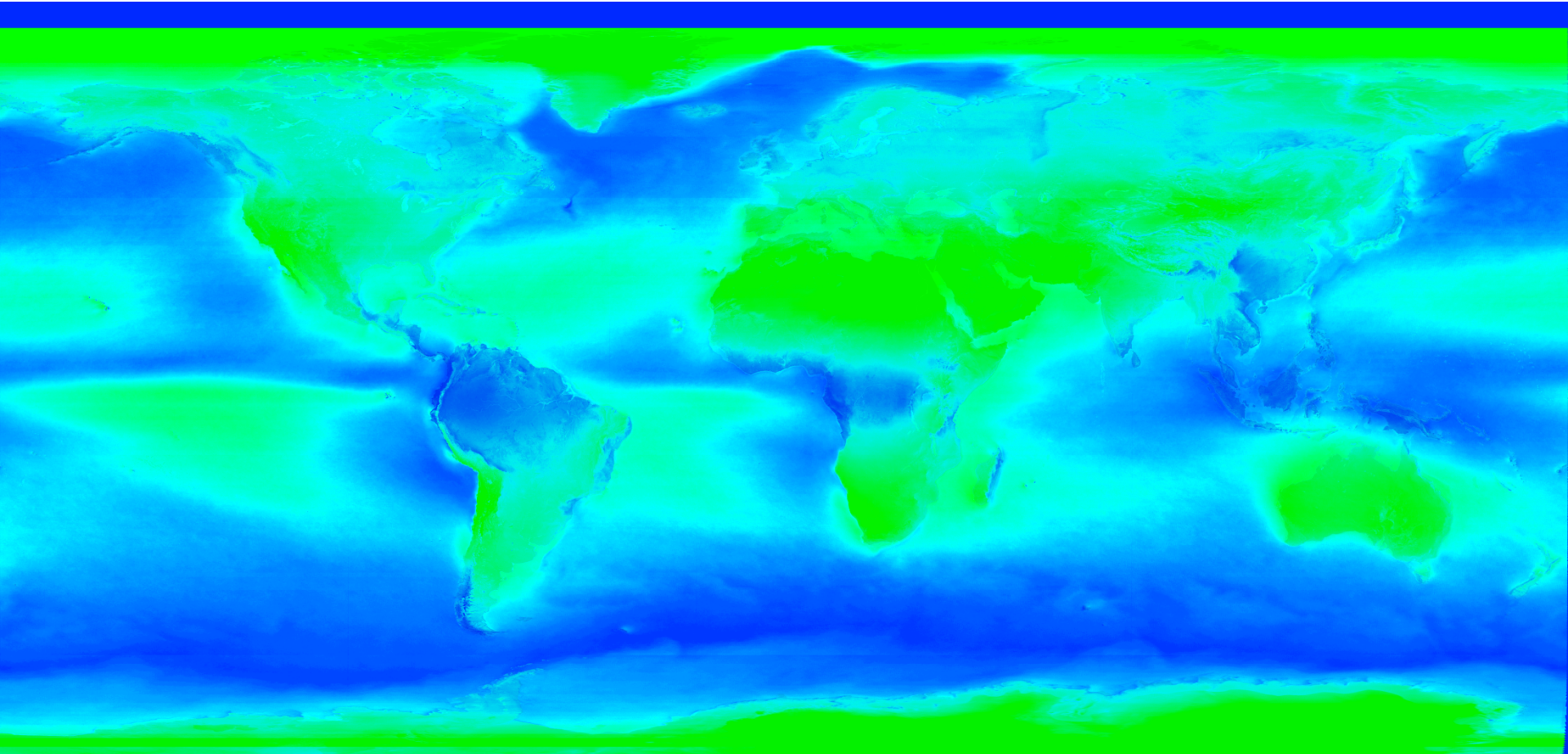
Yearly Cloud Free Views 0 2 4+
[Days Between Views] [-] [45] [<90]

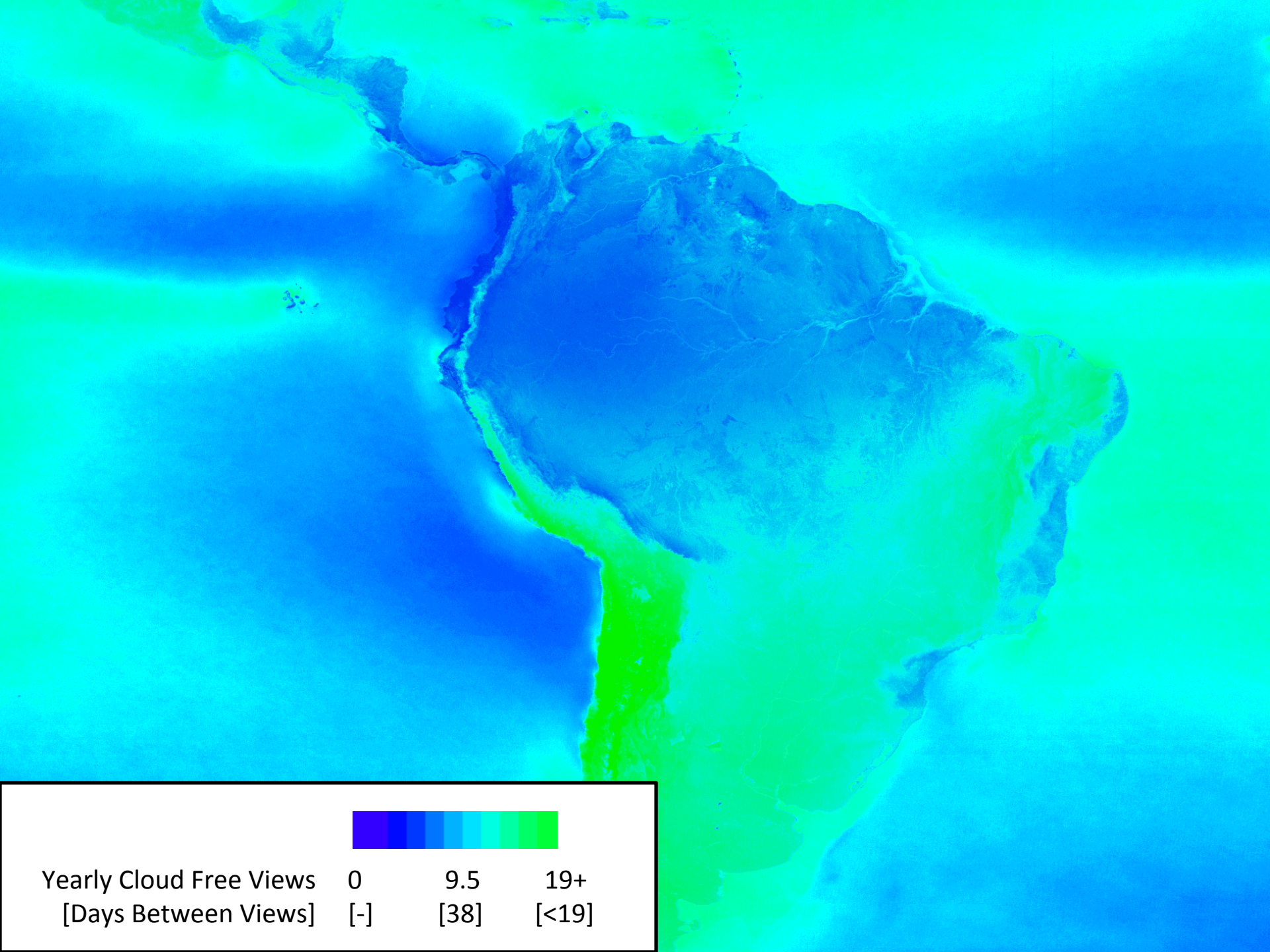


VSWIR



Yearly Cloud Free Views	0	9.5	19+
[Days Between Views]	[-]	[38]	[<19]





Yearly Cloud Free Views	0	9.5	19+
[Days Between Views]	[-]	[38]	[<19]