

Supplementary material

Table S1. Availability of cloud-free observations per pixel per 5-year seasonal window.

Number of cloud-free pixels	Dry season (%)	Wet season (%)
1-10	0.01	0.31
11-20	20.28	35.12
21-30	57.28	49.12
31-40	21.74	13.41
41-50	0.69	2.02
51-60	0	0.02

Table S2. Per-class accuracy statistics for the 15 models tested.

Model	Statistic U: User's P: Producer's	Woody Vegetation	Grassland	Cropland	Non- Vegetated
Dry Landsat All SAR	U	0.981	0.923	0.764	0.676
	P	0.937	0.884	0.885	0.874
Dry Landsat Dry SAR	U	0.981	0.923	0.763	0.670
	P	0.938	0.882	0.881	0.871
Dry Landsat Wet SAR	U	0.952	0.854	0.724	0.763
	P	0.882	0.862	0.839	0.862
Dry Landsat	U	0.935	0.809	0.661	0.587
	P	0.823	0.820	0.806	0.772
Wet Landsat All SAR	U	0.985	0.915	0.767	0.670
	P	0.931	0.887	0.883	0.877
Wet Landsat Dry SAR	U	0.983	0.912	0.771	0.636
	P	0.926	0.886	0.874	0.869
Wet Landsat Wet SAR	U	0.947	0.839	0.751	0.725
	P	0.853	0.868	0.849	0.874
Wet Landsat	U	0.935	0.821	0.725	0.533
	P	0.797	0.851	0.747	0.897
All Landsat All SAR	U	0.981	0.913	0.794	0.673
	P	0.937	0.896	0.876	0.855
All Landsat Dry SAR	U	0.979	0.916	0.784	0.661
	P	0.936	0.889	0.878	0.850
All Landsat Wet SAR	U	0.959	0.878	0.760	0.765
	P	0.897	0.885	0.847	0.883
All Landsat	U	0.946	0.863	0.745	0.610
	P	0.872	0.856	0.824	0.840
SAR All	U	0.966	0.851	0.548	0.553
	P	0.864	0.772	0.707	0.848
SAR Dry	U	0.958	0.848	0.555	0.528
	P	0.857	0.781	0.709	0.808
SAR Wet	U	0.864	0.750	0.508	0.496
	P	0.793	0.743	0.573	0.677

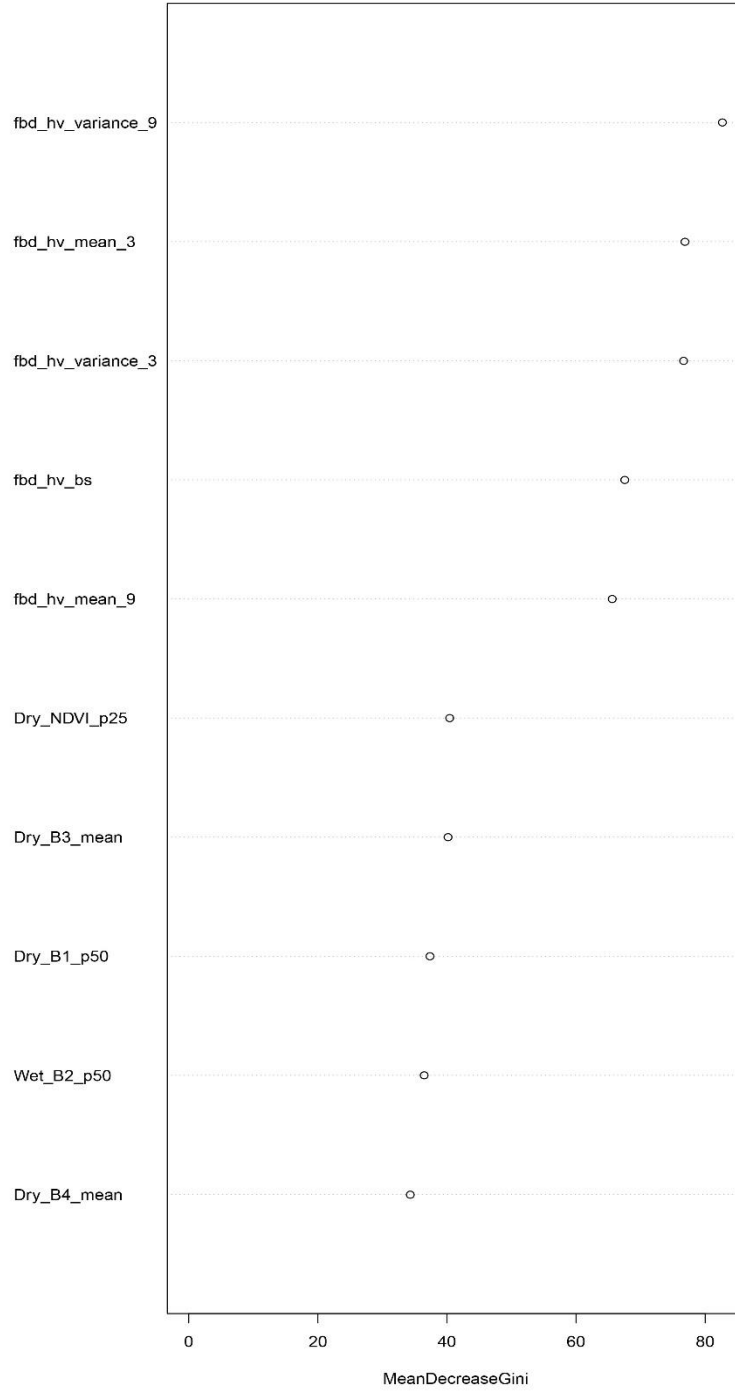


Figure S1. Ten most important variables for the “All Landsat All SAR” Random Forest model (model #9 in Figure 4) according to the Mean Decrease Gini index [63]. **fbd_hv**: dry season HV PALSAR backscatter; **fbd_hv_variance**: the Grey-Level Co-occurrence Matrix (GLCM) variance layer for the dry season HV backscatter; **fbd_hv_mean**: the Grey-Level Co-occurrence Matrix (GLCM) mean layer for the dry season HV backscatter; **_9**: the 9x9 window GLCM statistics calculations; **_3**: the 3x3 window GLCM statistics calculations; **B1, B2, ...**: Landsat bands; **p25, p50**: 25th, 50th percentiles.