



*Supplement of*

## **Global land surface 250 m 8 d fraction of absorbed photosynthetically active radiation (FAPAR) product from 2000 to 2021**

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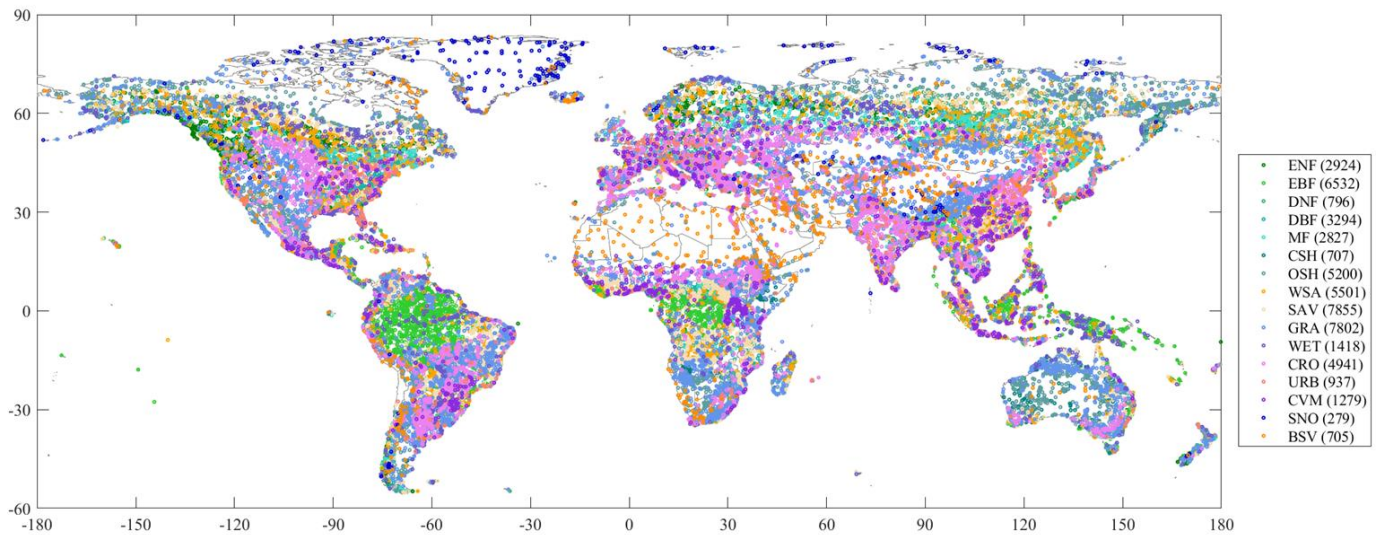


Fig.S1 Distribution of the representative pixels (different colors indicate different land-cover types and the number of each type is shown in the legend).

Table S1. Basic information of the high-resolution reference FAPAR maps used to validate 500-m and 250-m FAPAR

Site_Name	High-resolution image	Map size (km)	No. of field samples	Transfer function RMSE	Year	DOY	Lat (°)	Lon(°)	Type	Network
<b>Gnangara</b>	Landsat5	3×4	31	0.053	2004	58	-31.53	115.88	SAV	VALERI
<b>Alpilles2</b>	SPOT4	3×3	29	0.137	2002	203	43.81	4.71	CVM	VALERI
<b>Barrax</b>	SPOT4	5×3	44	0.17	2003	194	39.06	-2.1	CVM	VALERI
<b>Camérons</b>	SPOT4	4×4	29	0.055	2004	63	-32.6	116.25	WSA	VALERI
<b>Concepcion</b>	SPOT4	3×3	26	0.098	2003	9	-37.47	-73.47	EBF	VALERI
<b>Counami</b>	SPOT4	4×5	41		2001	268	5.35	-53.24	EBF	VALERI
<b>Counami</b>	SPOT4	3×3	41		2002	286	5.34	-53.24	EBF	VALERI
<b>Demmin</b>	SPOT4	5×3	36		2004	163	53.89	13.21	CVM	VALERI
<b>Fundulea</b>	SPOT2	4×4	30	0.091	2002	144	44.41	26.59	CVM	VALERI
<b>Fundulea</b>	SPOT5	4×4	48	0.114	2003	143	44.41	26.59	CVM	VALERI
<b>Gilching</b>	SPOT2	3×3	35	0.105	2002	199	48.08	11.32	CVM	VALERI
<b>Haouz</b>	SPOT4	3×3	39	0.126	2003	71	31.66	-7.6	CVM	VALERI
<b>Laprida</b>	SPOT4	3×3	30	0.112	2001	310	-36.99	-60.55	WET	VALERI
<b>Laprida</b>	SPOT4	3×3	29		2002	291	-36.99	-60.55	WET	VALERI
<b>Larose</b>	SPOT4	3×3	28	0.08	2003	218	45.38	-75.22	DBF	VALERI
<b>Larzac</b>	SPOT2	3×3	27	0.096	2002	22	43.94	3.12	SAV	VALERI
<b>Plan_De_Dieu</b>	SPOT2	3×3	26	0.062	2004	189	44.2	4.95	WET	VALERI
<b>Puechabon</b>	SPOT2	3×3	68	0.172	2001	164	43.72	3.65	WSA	VALERI
<b>Sonian</b>	SPOT4	3×3	36		2004	173	50.77	4.41	DBF	VALERI
<b>SudOuest</b>	SPOT2	3×3	33	0.144	2002	189	43.51	1.24	CVM	VALERI
<b>Turco</b>	SPOT4	3×3	32	0.014	2002	240	-18.24	-68.19	OSH	VALERI
<b>Turco</b>	SPOT4	3×3	34	0.02	2003	104	-18.24	-68.19	OSH	VALERI
<b>Wankama</b>	SPOT4	3×3	31		2005	173	13.64	2.64	WET	VALERI
<b>Zhang_Bei</b>	SPOT2	3×3	47	0.11	2002	221	41.28	114.69	WET	VALERI
<b>Pshenichne</b>	SPOT5	5×5	30	0.2	2013	134	50.08	30.23	CVM	ImagineS

<b>Pshenichne</b>	SPOT5	5×5	30	0.15	2013	166	50.08	30.23	CVM	ImagineS
<b>SouthWest_1</b>	Landsat8	5×5	23	0.149	2013	173	43.55	1.09	CVM	ImagineS
<b>SouthWest_2</b>	Landsat8	5×5	23	0.149	2013	173	43.45	1.15	CVM	ImagineS
<b>SouthWest_1</b>	SPOT5	5×5	18	0.062	2013	191	43.55	1.09	CVM	ImagineS
<b>SouthWest_2</b>	SPOT5	5×5	18	0.062	2013	191	43.45	1.15	CVM	ImagineS
<b>Pshenichne</b>	SPOT5	5×5	30	0.079	2013	196	50.08	30.23	CVM	ImagineS
<b>SouthWest_1</b>	Landsat8	5×5	20	0.082	2013	207	43.55	1.09	CVM	ImagineS
<b>SouthWest_2</b>	Landsat8	5×5	20	0.082	2013	207	43.45	1.14	CVM	ImagineS
<b>SouthWest_1</b>	SPOT5	5×5	20	0.036	2013	207	43.55	1.09	CVM	ImagineS
<b>SouthWest_2</b>	SPOT5	5×5	20	0.036	2013	207	43.45	1.15	CVM	ImagineS
<b>SouthWest_1</b>	Landsat8	5×5	19	0.17	2013	230	43.55	1.09	CVM	ImagineS
<b>SouthWest_2</b>	Landsat8	5×5	19	0.17	2013	230	43.45	1.15	CVM	ImagineS
<b>SouthWest_1</b>	Landsat8	5×5	18	0.13	2013	247	43.55	1.09	CVM	ImagineS
<b>SouthWest_2</b>	Landsat8	5×5	18	0.13	2013	247	43.45	1.15	CVM	ImagineS
<b>25deMayo_Alfalfa</b>	SPOT5	5×5	43	0.226	2014	40	-37.91	-67.75	WET	ImagineS
<b>25deMayo_Shurb</b>	SPOT5	5×5	43	0.226	2014	40	-37.94	-67.79	OSH	ImagineS
<b>Capitanata</b>	Landsat7	5×5	40	0.15	2014	77	41.46	15.49	CVM	ImagineS
<b>LaReina_Cordoba_1</b>	Landsat8	5×5	53	0.095	2014	140	37.82	-4.86	CVM	ImagineS
<b>LaReina_Cordoba_2</b>	Landsat8	5×5	53	0.095	2014	140	37.79	-4.83	CVM	ImagineS
<b>Barrax-LasTias</b>	Landsat8	5×5	30	0.09	2014	149	39.05	-2.1	CVM	ImagineS
<b>Pshenichne</b>	Landsat8	5×5	28	0.091	2014	163	50.08	30.23	CVM	ImagineS
<b>Pshenichne</b>	Landsat7	5×5	25	0.057	2014	212	50.08	30.23	CVM	ImagineS
<b>SanFernando</b>	FASAT-C	5×5	40	0.12	2015	19	-34.72	-71	CVM	ImagineS
<b>Capitanata</b>	Landsat8	5×5	93	0.05	2015	113	41.46	15.49	CVM	ImagineS
<b>Barrax-LasTias</b>	Landsat8	5×5	31	0.122	2015	147	39.05	-2.1	CVM	ImagineS
<b>Pshenichne</b>	Landsat8	5×5	27	0.04	2015	174	50.08	30.23	CVM	ImagineS
<b>SouthWest_CON</b>	Landsat8	5×5	73	0.11	2015	174	43.97	0.34	CVM	ImagineS
<b>SouthWest_CRE</b>	Landsat8	5×5	73	0.11	2015	174	43.99	-0.05	WSA	ImagineS
<b>SouthWest_MTO</b>	Landsat8	5×5	73	0.11	2015	174	43.67	0.22	CVM	ImagineS
<b>SouthWest_PEY</b>	Landsat8	5×5	73	0.11	2015	174	43.67	0.22	CVM	ImagineS
<b>SouthWest_SAV</b>	Landsat8	5×5	73	0.11	2015	174	43.82	1.18	CVM	ImagineS
<b>SouthWest_URG</b>	Landsat8	5×5	73	0.11	2015	174	43.64	-0.43	BSV	ImagineS
<b>Pshenichne</b>	Landsat8	5×5	28	0.05	2015	188	50.08	30.23	CVM	ImagineS
<b>Barrax-LasTias</b>	Landsat8	5×5	37	0.113	2015	203	39.05	-2.1	CVM	ImagineS
<b>Pshenichne</b>	Landsat7	5×5	28	0.06	2015	204	50.08	30.23	CVM	ImagineS

<b>Collelongo</b>	Landsat8	5×5	15	0.07	2015	268	41.85	13.59	WET	ImagineS
<b>Muragua- Upper-Tana</b>	Landsat8	5×5	26	0.13	2016	68	-0.77	36.97	SAV	ImagineS

Table S2. Basic information of the two Ameriflux and ten NEON sites for FAPAR products validation

Site name	Lat (°)	Lon (°)	Type	Field data used	Network
<b>US-Ne2</b>	41.1649	-96.4701	CRO	2001-2012	Ameriflux
<b>US-Bar</b>	44.0646	-71.2881	DBF	2004-2011	Ameriflux
<b>BART</b>	44.0643	-71.2856	DBF	2014-2018	NEON
<b>DELA</b>	32.5377	-87.8055	DBF	2016-2018	NEON
<b>HARV</b>	42.5368	-72.1808	MF	2014-2018	NEON
<b>JERC</b>	31.1968	-84.4669	WSA	2016-2018	NEON
<b>ORNL</b>	35.9663	-84.2838	DBF	2015-2018	NEON
<b>OSBS</b>	29.6908	-81.9976	WSA	2014-2018	NEON
<b>SCBI</b>	38.8946	-78.1396	DBF	2014-2018	NEON
<b>SERC</b>	38.8904	-76.5561	SAV	2015-2018	NEON
<b>STEI</b>	45.5046	-89.5866	DBF	2015-2018	NEON
<b>UNDE</b>	46.2332	-89.5397	DBF	2015-2018	NEON