Table S1. Same as Table 5 but using only overlapping dates.

	R			bias			RMSE			UbRMSE		
	CCI	IC	ASCAT	CCI	IC	ASCAT	CCI	IC	ASCAT	CCI	IC	ASCAT
FRAYE **N=174**	0.60 (0.56)	0.53 (0.14)	**0.64** (**0.58**)	**0.0014**	-0.102	0.014	**0.074**	0.129	0.086	**0.074**	0.079	0.085
GRANDCAL **N=169**	**0.74** (**0.52**)	0.64 (0.39)	0.73 (0.50)	0.079	**-0.023**	0.093	0.089	**0.059**	0.116	**0.042**	0.054	0.069
HILLAN2 **N=134**	**0.85** (0.74)	0.75 (0.64)	0.82 (**0.75**)	**0.031**	-0.063	0.044	**0.042**	0.076	0.077	**0.027**	0.042	0.063
NEZER **N=148**	0.76 (**0.64**)	0.62 (0.40)	**0.81** (**0.64**)	0.118	0.133	**0.111**	**0.1239**	0.158	0.150	**0.034**	0.085	0.102
PARCMETEO **N=284**	**0.76** (0.49)	0.59 (0.56)	0.70 (**0.58**)	0.079	**-0.039**	0.081	0.088	**0.068**	0.120	**0.037**	0.055	0.088
Average	**0.74** (0.59)	0.62 (0.43)	**0.74** (**0.61**)	0.061	**-0.018**	0.068	**0.083**	0.098	0.109	**0.042**	0.063	0.081

Table S2. Same as Table 6 but using only overlapping dates.

	R			bias			RMSE			UbRMSE		
	CCI	IC	ASCAT	CCI	IC	ASCAT	CCI	IC	ASCAT	CCI	IC	ASCAT
Bilos_E **N=225**	**0.81** (**0.66**)	0.60 (0.46)	0.79 (0.63)	**0.069**	0.09	0.094	**0.075**	0.119	0.132	**0.028**	0.078	0.093
Bilos_N **N=254**	0.77 (0.51)	0.63 (0.45)	**0.78** (**0.60**)	**0.067**	0.0813	0.087	**0.074**	0.111	0.126	**0.030**	0.076	0.090
Bilos_S **N=252**	0.56 (0.60)	0.53 (0.44)	**0.59** (**0.62**)	**0.009**	0.025	0.033	**0.062**	0.088	0.102	**0.061**	0.084	0.096
Average	0.71 (0.59)	0.59 (0.45)	**0.72** (**0.61**)	**0.048**	0.065	0.071	**0.070**	0.106	0.120	**0.039**	0.079	0.093

Table S3. Same as Table 7 but using only overlapping dates.

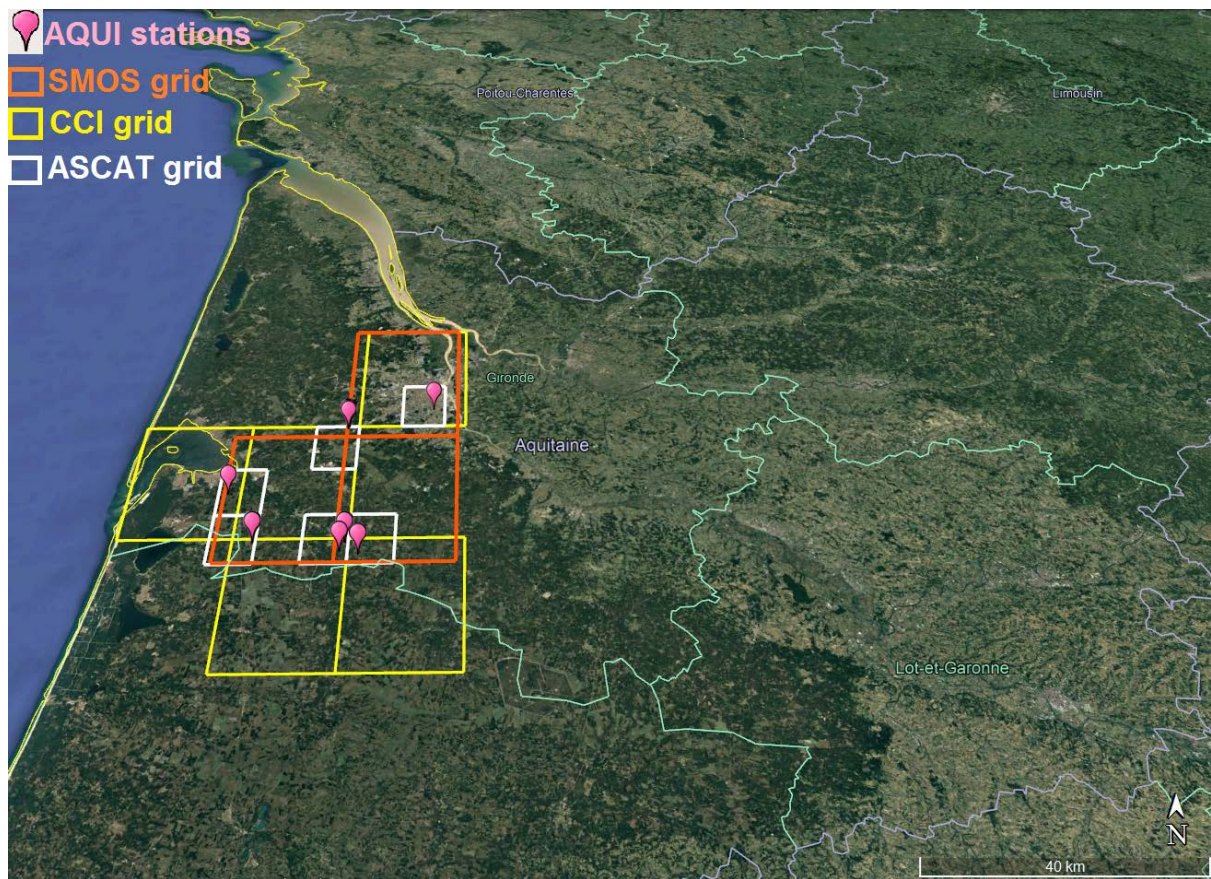|	R			Bias			RMSE			UbRMSE		
	CCI	IC	ASCAT	CCI	IC	ASCAT	CCI	IC	ASCAT	CCI	IC	ASCAT
C5_1 **N=174**	**0.77** (**0.66**)	0.67 (0.60)	0.72 (**0.71**)	0.08	**-0.004**	0.120	0.084	**0.047**	0.148	**0.031**	0.046	0.087
C5_2 **N=174**	**0.60** (0.50)	0.58 (0.55)	0.52 (**0.58**)	0.096	**0.012**	0.138	0.104	**0.053**	0.169	**0.039**	0.052	0.099
C6_1 **N=174**	**0.79** (0.65)	0.77 (0.62)	0.78 (**0.70**)	0.109	**0.026**	0.151	0.113	**0.052**	0.178	**0.027**	0.045	0.095
C6_2 **N=173**	**0.79** (0.61)	0.70 (0.57)	0.72 (**0.67**)	0.089	**0.006**	0.130	0.094	**0.045**	0.158	**0.028**	0.044	0.089
Average	0.74 (0.61)	0.68 (0.59)	0.69 (**0.67**)	0.093	**0.010**	0.134	0.098	**0.049**	0.163	**0.031**	0.046	0.092

Figure S1. The AQUI in situ stations distributed in the contributing area" for a single grid point for SMOS, ASCAT, and CCI.