

**Table S1.** Summary of the goodness-of-fit tests

Station	Kriging			IDW			Storm Index			
	NSE	SEE (mm/h)	U	NSE	SEE (mm/h)	U	NSE	SEE (mm/h)	U	Ek
1	0.608	4.505	0.056	0.791	3.287	0.097	0.945	1.683	0.861	6
2	0.902	2.095	0.992	0.979	0.974	0.599	0.983	0.876	0.992	15
3	0.937	1.842	0.910	0.921	2.066	0.359	0.969	1.289	0.599	9
4	-0.899	7.291	0.005	0.562	3.504	0.261	0.917	1.523	0.503	6
5	0.070	5.679	0.042	0.907	1.798	0.543	0.888	1.967	0.359	4
6	0.267	5.366	0.051	0.892	2.055	0.571	0.917	1.805	0.910	1
7	0.503	4.418	0.164	0.895	2.032	0.628	0.930	1.664	0.845	13
8	0.949	1.533	0.829	0.946	1.577	0.477	0.925	1.863	0.490	10
9	0.887	2.183	0.749	0.916	1.880	0.734	0.918	1.856	0.585	15
10	0.531	4.012	0.516	0.005	5.843	0.054	0.898	1.868	0.503	8
11	-0.598	14.020	0.000	-0.596	14.011	0.000	0.943	2.657	0.613	16
12	0.832	2.721	0.464	0.873	2.364	0.813	0.940	1.620	0.734	8
13	0.678	3.898	0.158	0.681	3.882	0.146	0.948	1.560	0.845	7
14	0.950	1.538	0.942	0.841	2.741	0.348	0.939	1.696	0.543	3
15	0.845	2.499	0.942	0.844	2.513	0.992	0.980	0.910	0.975	2
16	0.652	4.754	0.042	0.576	5.246	0.025	0.940	1.977	0.599	11
17	0.987	0.923	0.861	0.874	2.834	0.348	0.867	2.923	0.557	25
18	0.875	3.301	0.228	0.976	1.434	0.643	0.998	0.409	0.910	20
19	0.886	3.503	0.359	0.979	1.502	0.926	0.922	2.899	0.749	29
20	0.733	5.107	0.097	0.798	4.448	0.140	0.998	0.427	0.893	18
21	0.950	1.640	0.658	0.802	3.274	0.370	0.970	1.272	0.734	22

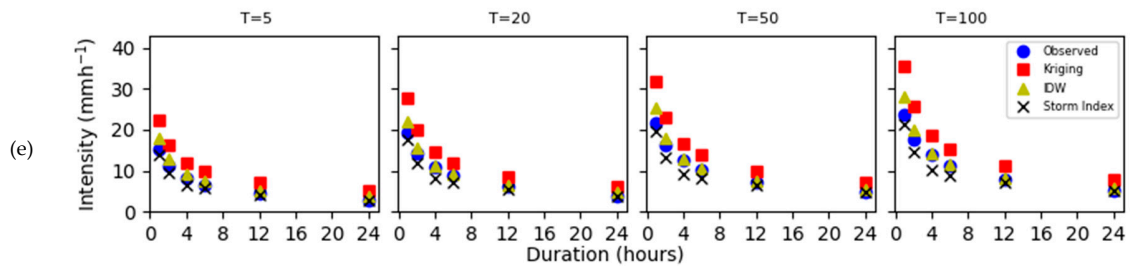
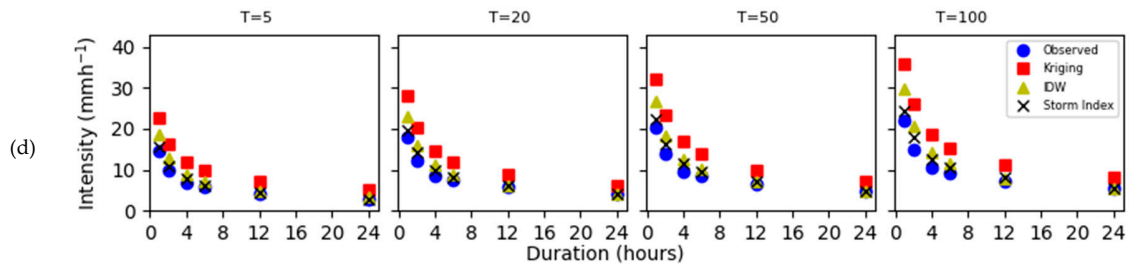
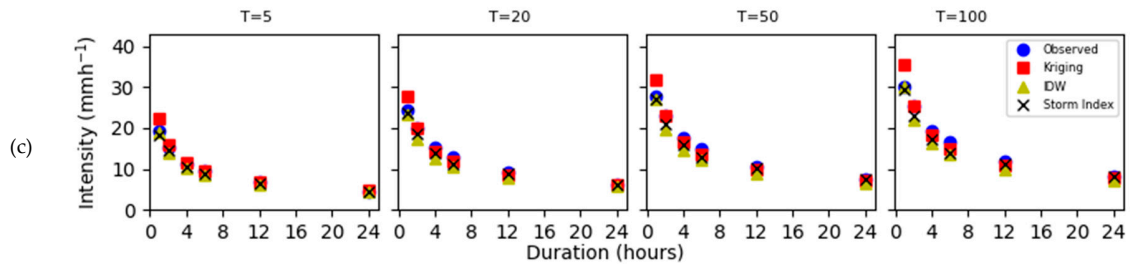
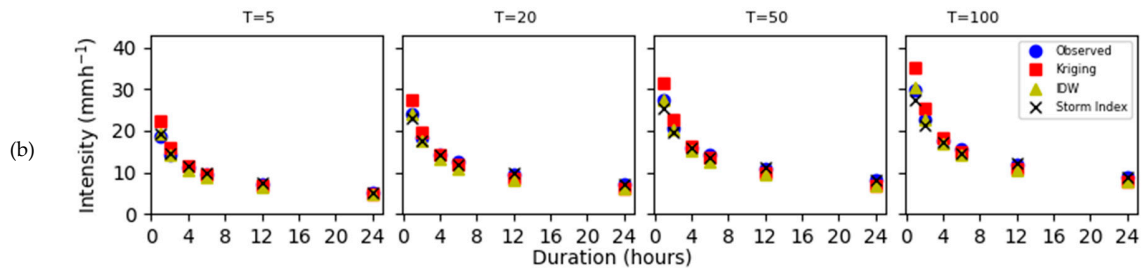
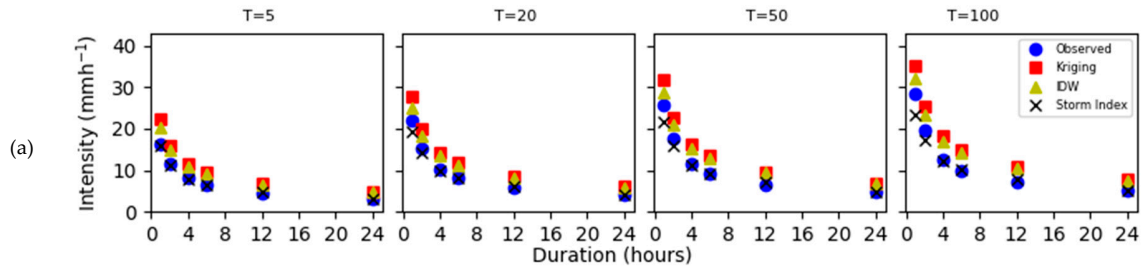
22	0.950	1.807	0.427	0.981	1.123	0.813	0.975	1.276	0.749	21
23	0.919	2.588	0.212	0.971	1.557	0.734	0.949	2.043	0.543	24
24	0.894	3.085	0.177	0.989	0.991	0.910	0.942	2.292	0.571	23
25	0.924	2.907	0.571	0.804	4.663	0.089	0.916	3.048	0.599	17
26	0.702	3.223	0.734	0.567	3.886	0.427	0.595	3.758	0.643	19
27	0.647	3.792	0.220	0.465	4.669	0.197	0.985	0.780	0.845	31
28	0.986	1.043	0.673	0.968	1.588	0.477	0.659	5.161	0.197	27
29	0.976	1.155	0.734	0.975	1.190	0.599	0.868	2.713	0.703	19
30	0.915	1.965	0.942	0.917	1.932	0.861	0.978	1.006	0.749	29
31	0.672	3.520	0.452	0.565	4.051	0.415	0.983	0.802	0.813	27
Average	0.682	3.481		0.763	3.062		0.922	1.859		
Variation Coef.	0.645	0.711		0.431	0.796		0.094	0.539		

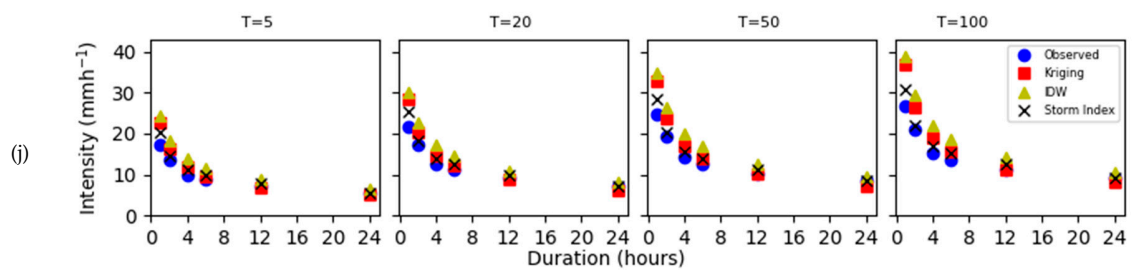
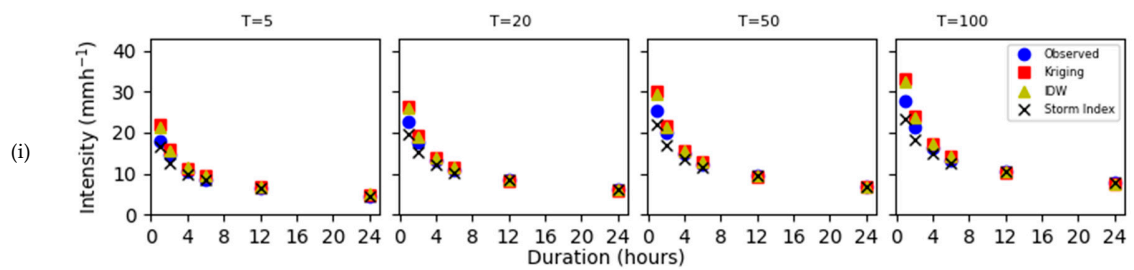
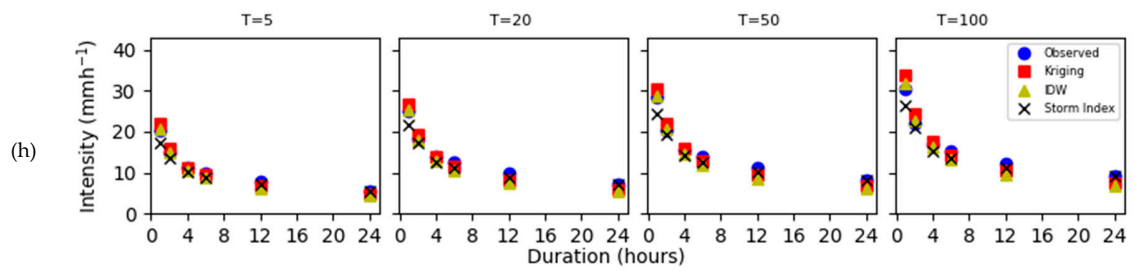
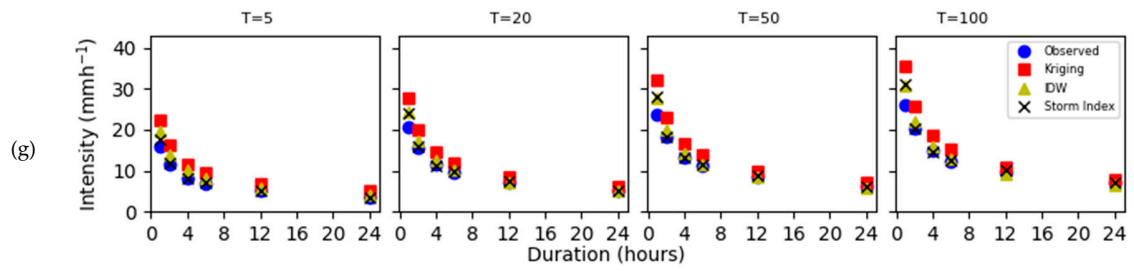
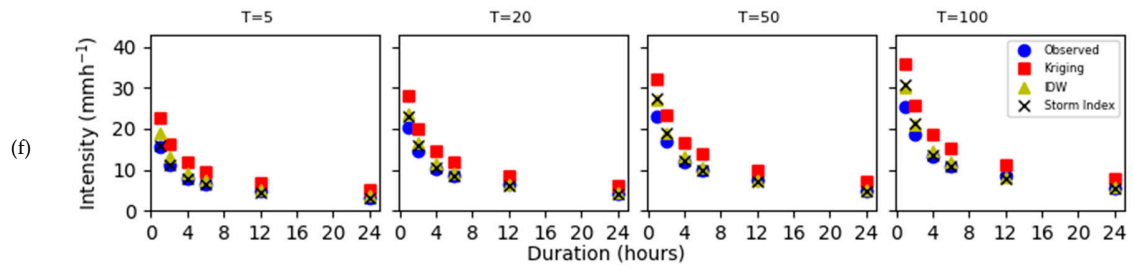
**Table S2.** Summary of data availability for each station in this study.

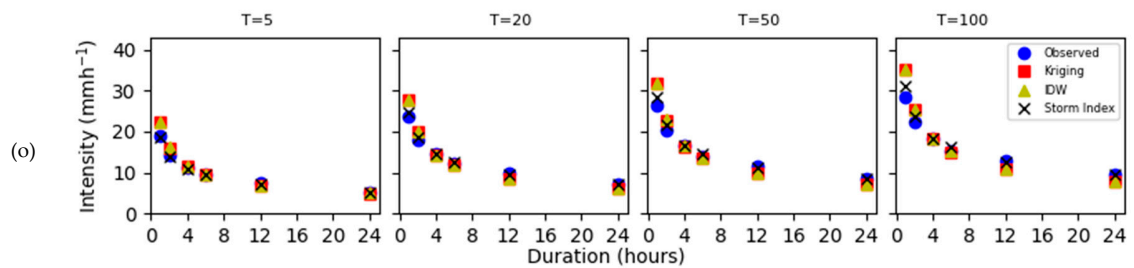
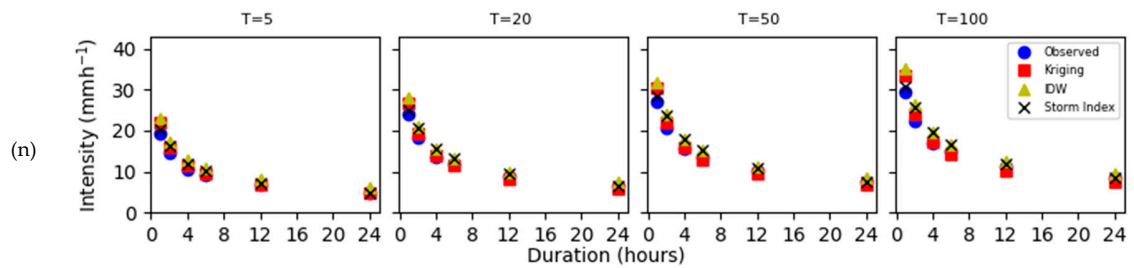
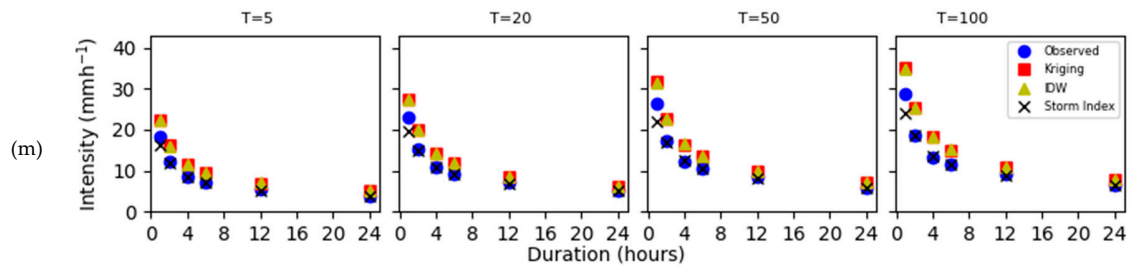
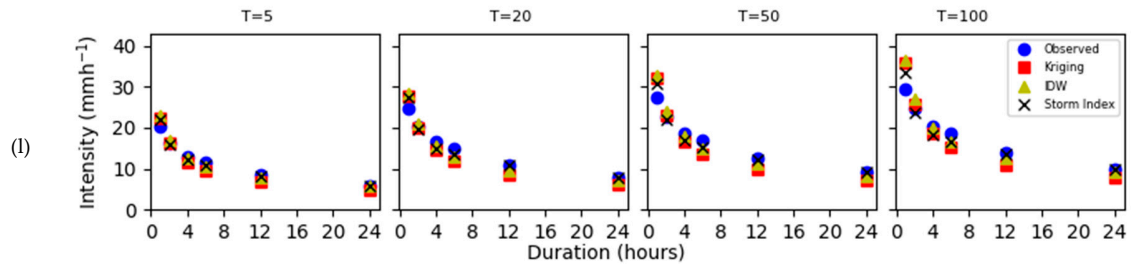
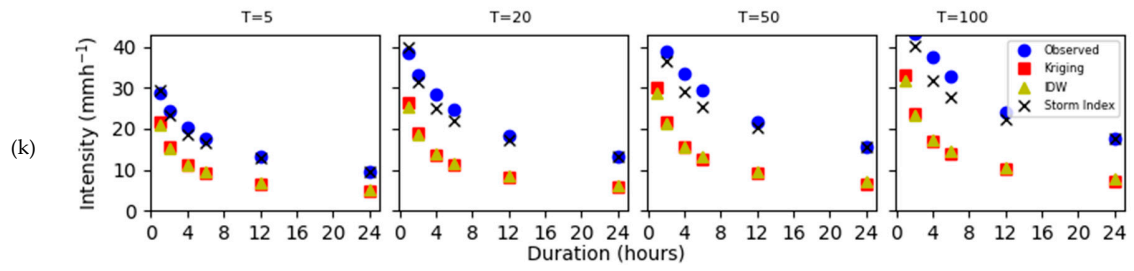
<b>Rain gauges</b>	<b>Start year</b>	<b>End year</b>	<b>Number of years</b>
Curicó	1966	2009	40
Los Queñes	1971	2009	39
Potrero Grande	1971	2009	38
Pencahue	1974	2009	36
Talca	1982	2009	28
San Javier	1974	2009	36
Melozal	1971	2009	35
Colorado	1969	2009	40
El Lirio-Maule	1968	1994	27
Casa de Máquinas	1964	2000	30
Melado en la Lancha	1966	1993	25
Embalse Ancoa	1971	2009	38
Parral	1974	2009	36
Embalse Digua	1971	2009	39
San Manuel	1995	2009	15
Embalse Bullileo	1971	2009	39
Chillán Viejo	1974	2009	36

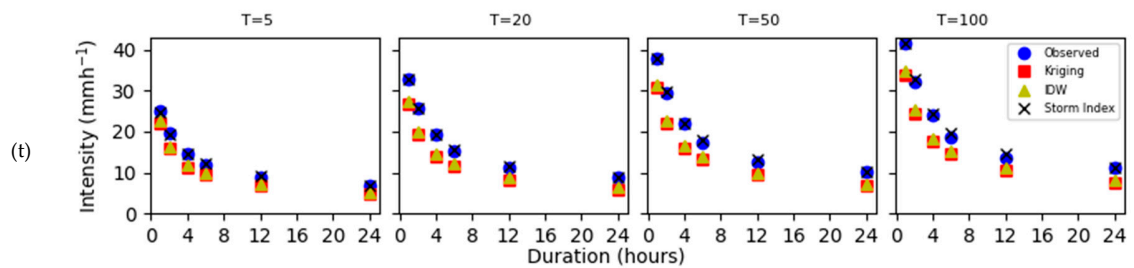
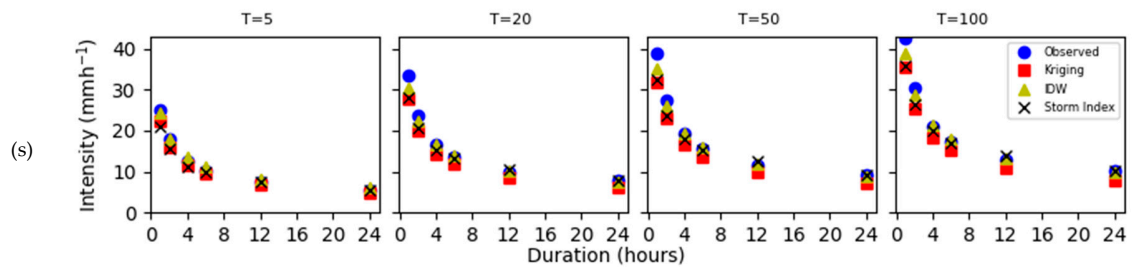
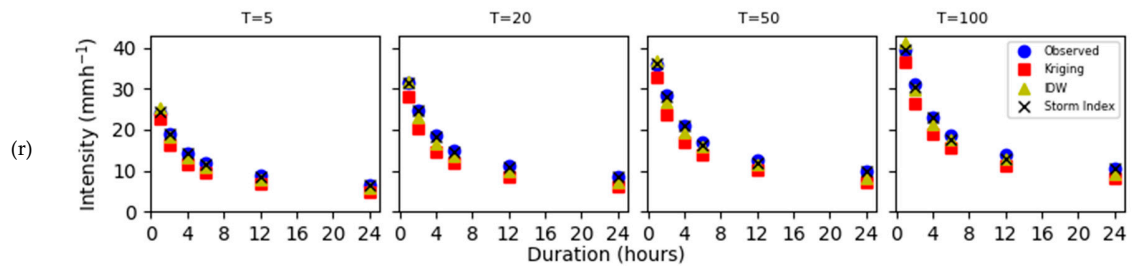
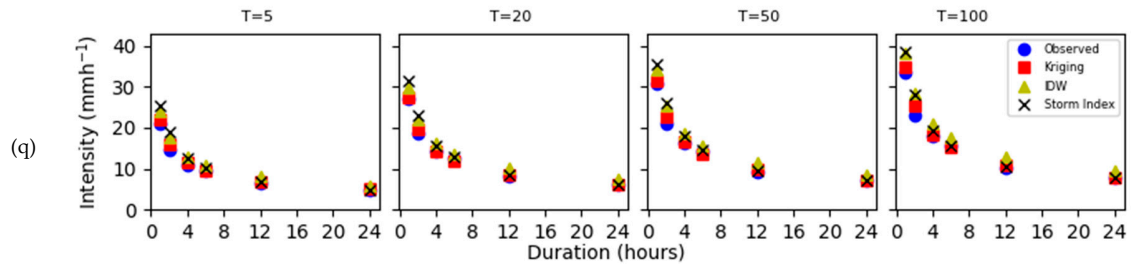
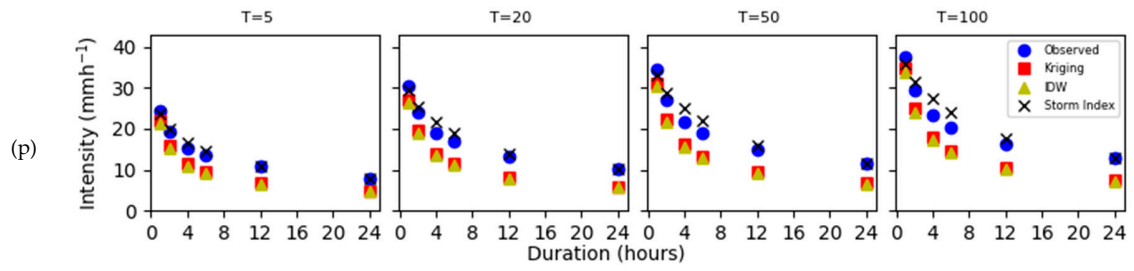
Chillán	1974	2009	30
Embalse Coihueco	1971	2009	38
Caracol	1987	2009	23
La Punilla	1965	1986	20
Diguillín	1965	2009	45
Hualpencillo	1946	1963	13
Carriel Sur	1966	2009	44
Bellavista	1965	1988	22
Polcura en Balseadero	1959	2000	40
Los Ángeles	1995	2009	15
Quilaco	1965	2009	45
Cerro el Padre	1970	2009	40
Troyo	1968	1994	27
Contulmo	1987	2009	21

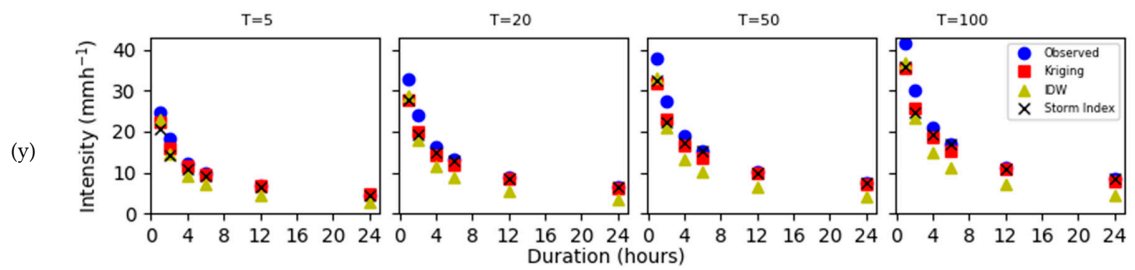
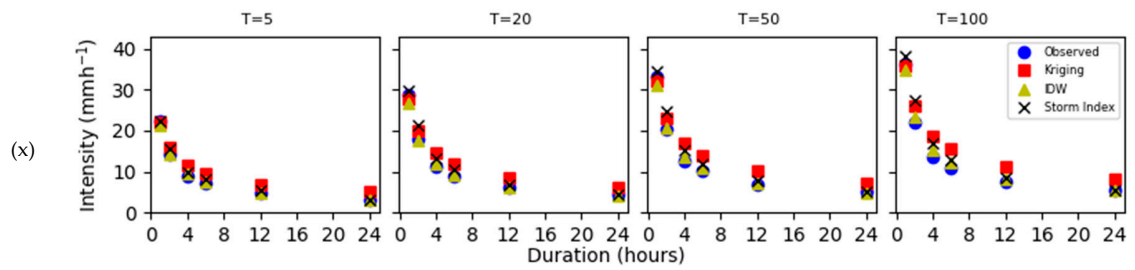
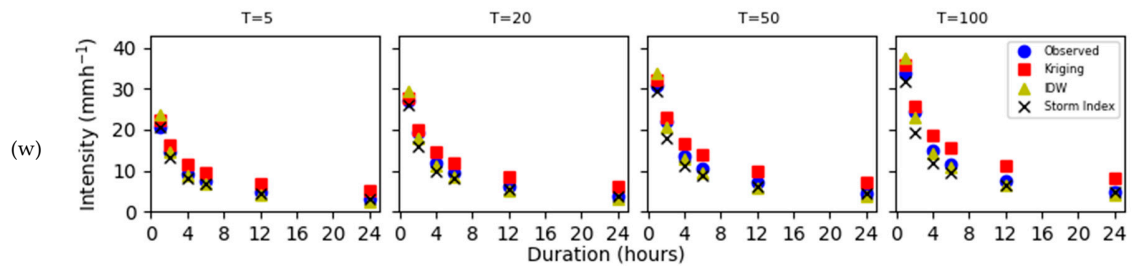
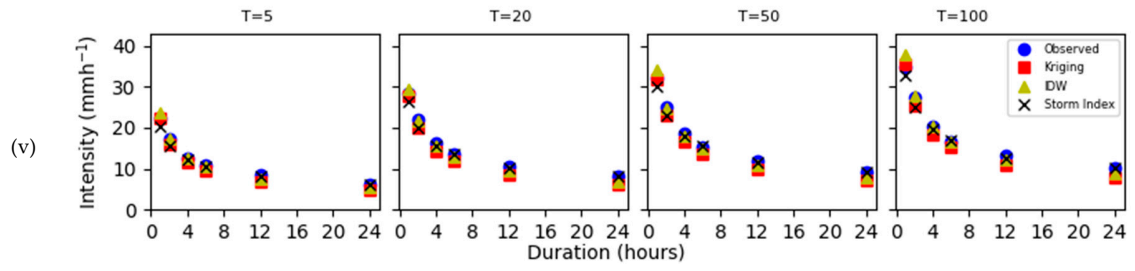
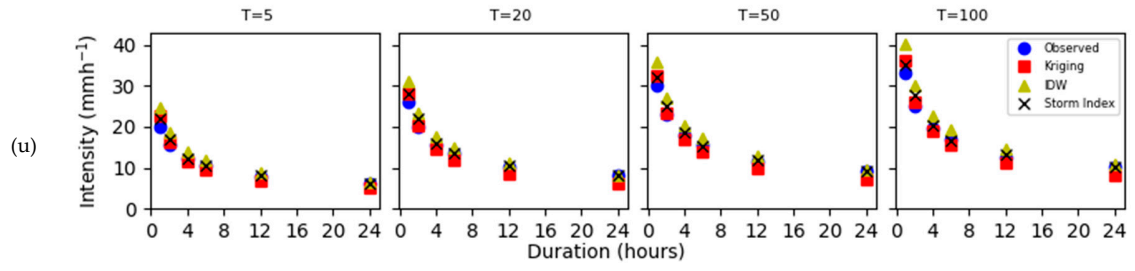
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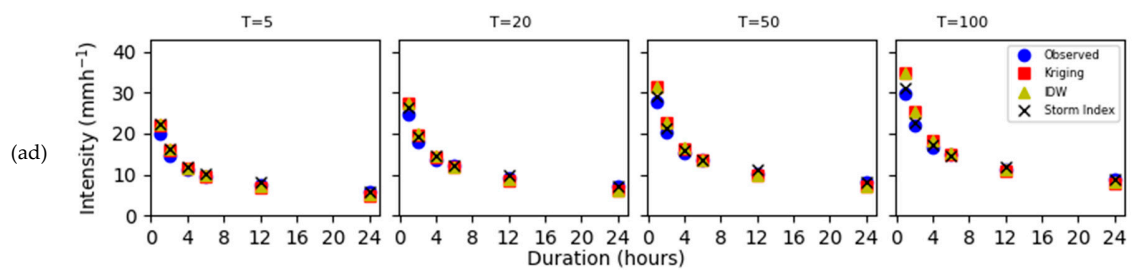
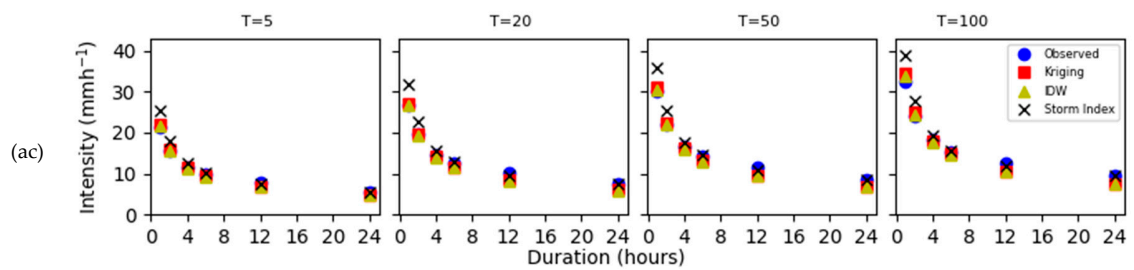
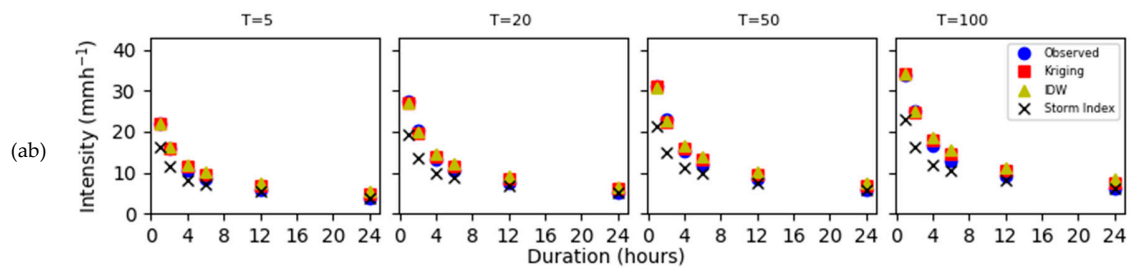
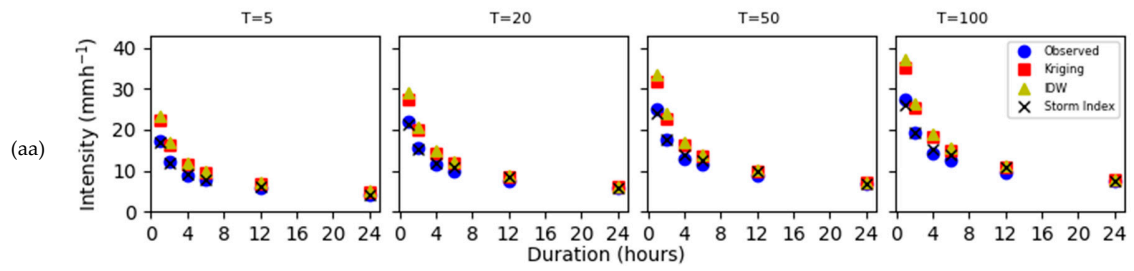
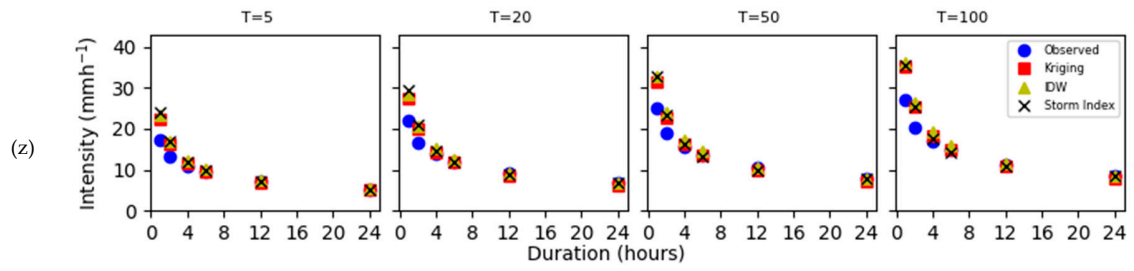


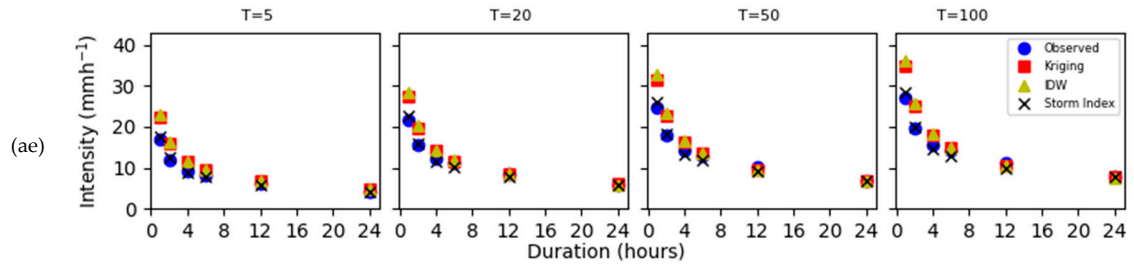




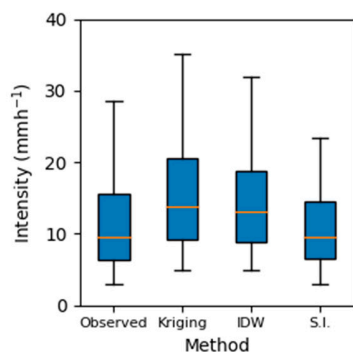




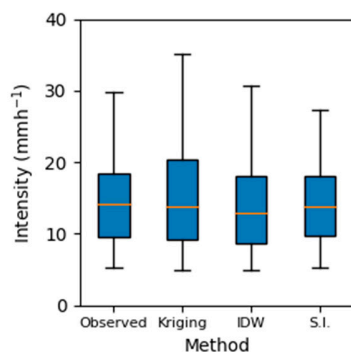




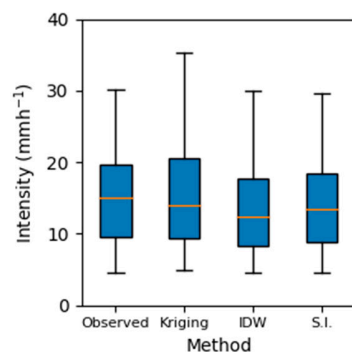
**Figure S1.** Boxplots of intensities for the following stations: (a) Curicó, (b) Los Queñes, (c) Potrero Grande, (d) Pencahue, (e) Talca, (f) San Javier, (g) Melozal, (h) Colorado, (i) El Lirio-Maule, (j) Casa de Máquinas, (k) Melado en la lancha, (l) Embalse Ancoa, (m) Parral, (n) Embalse Digua, (o) San Manuel, (p) Embalse Bullileo, (q) Chillán Viejo, (r) Chillán, (s) Embalse Coihueco, (t) Caracol, (u) La Punilla, (v) Diguillín, (w) Hualpencillo, (x) Carriel Sur, (y) Bellavista, (z) Polcura en Balseadero, (aa) Los Angeles, (ab) Quilaco, (ac) Cerro el Padre, (ad) Troyo, and (ae) Contulmo.



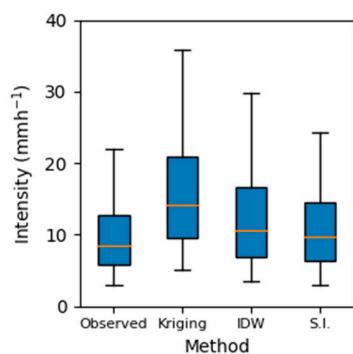
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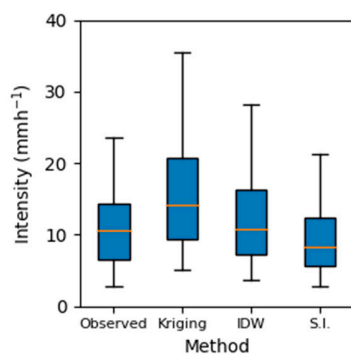
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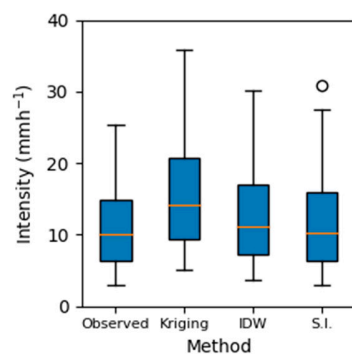
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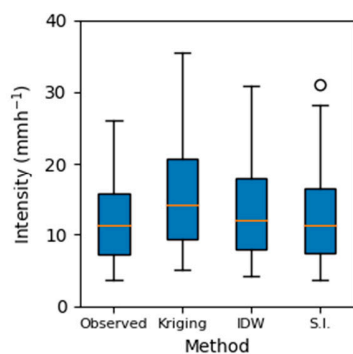
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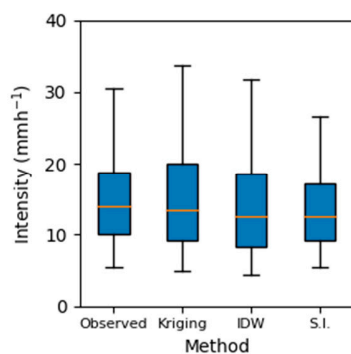
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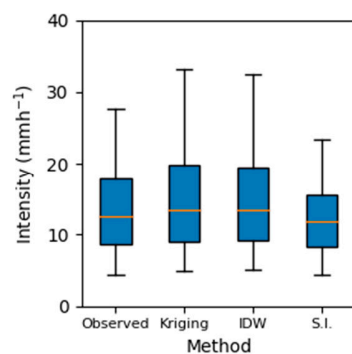
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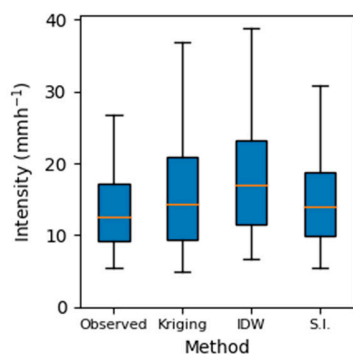
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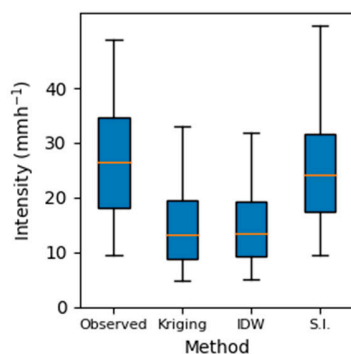
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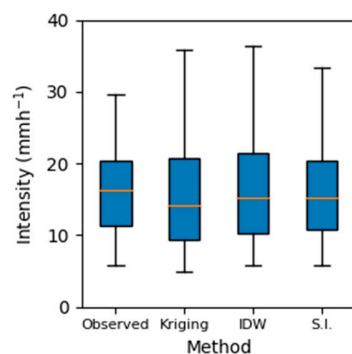
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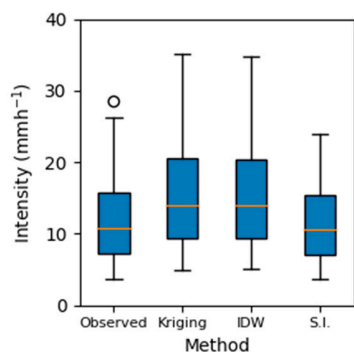
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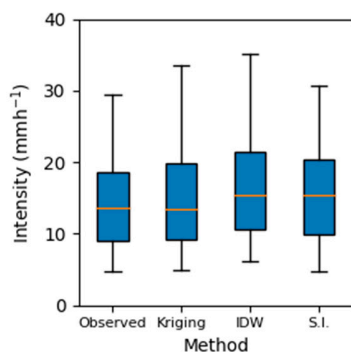
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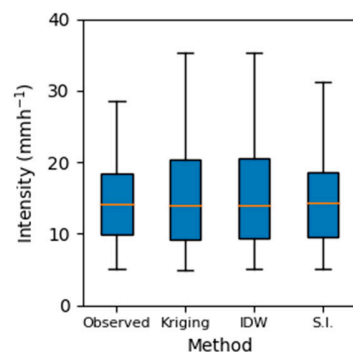
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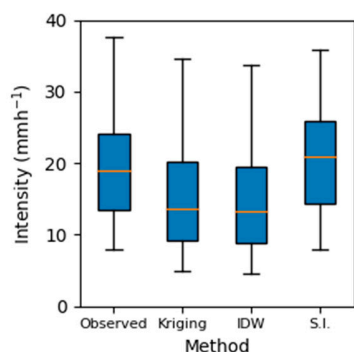
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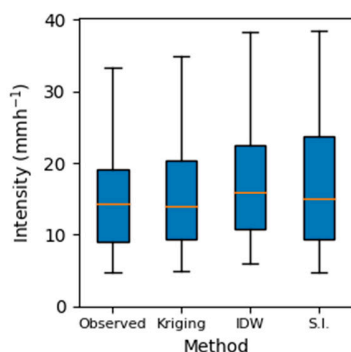
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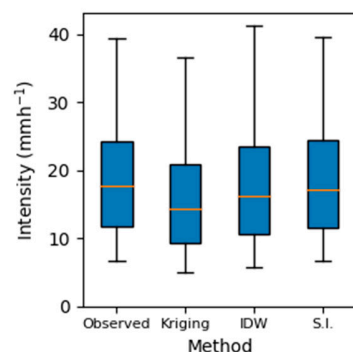
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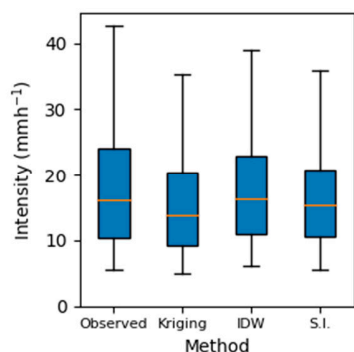
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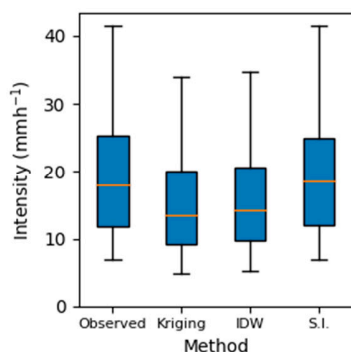
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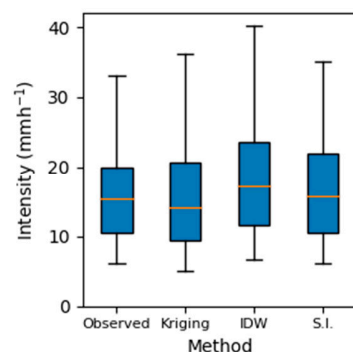
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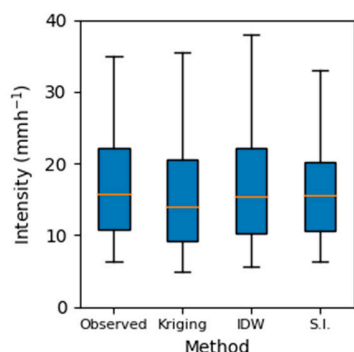
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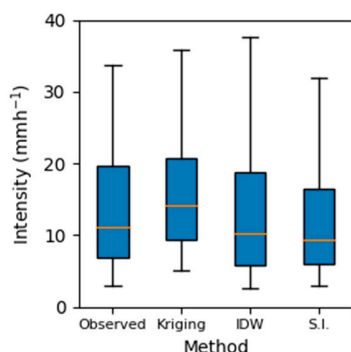
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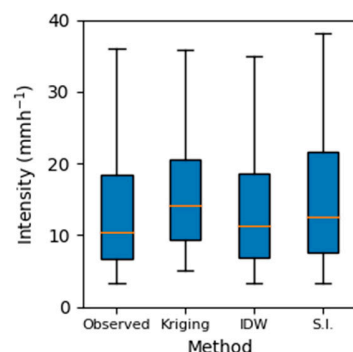
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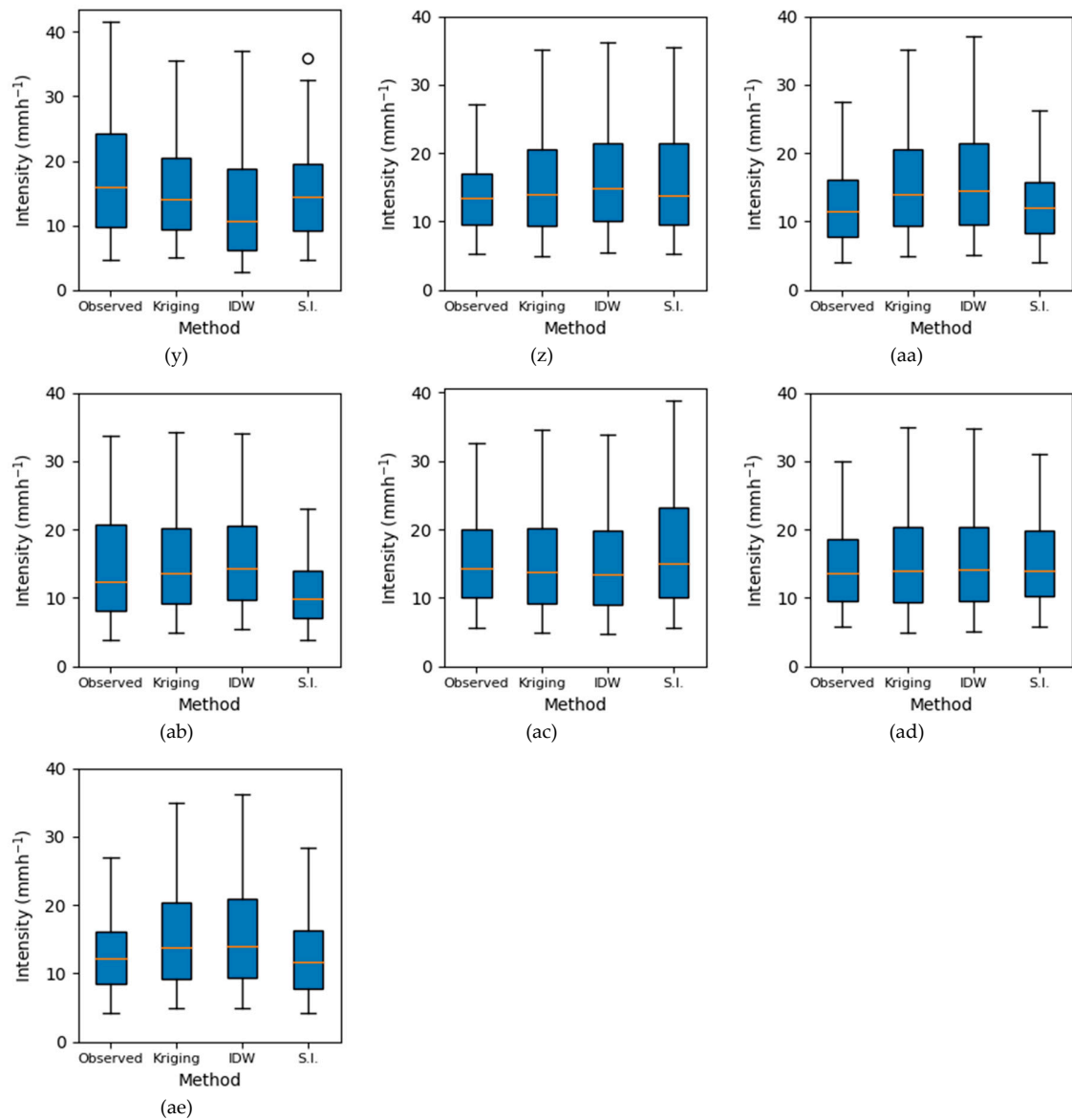
(v)



(w)



(x)



**Figure S2.** Boxplots of intensities for the following stations: (a) Curicó, (b) Los Queñes, (c) Potrero Grande, (d) Pencahue, (e) Talca, (f) San Javier, (g) Melozal, (h) Colorado, (i) El Lirio-Maule, (j) Casa de Máquinas, (k) Melado en la lancha, (l) Embalse Ancoa, (m) Parral, (n) Embalse Digua, (o) San Manuel, (p) Embalse Bullileo, (q) Chillán Viejo, (r) Chillán, (s) Embalse Coihueco, (t) Caracol, (u) La Punilla, (v) Diguillín, (w) Hualpencillo, (x) Carriel Sur, (y) Bellavista, (z) Polcura en Balseadero, (aa) Los Angeles, (ab) Quilaco, (ac) Cerro el Padre, (ad) Troyo, and (ae) Contulmo.