

- mountainous basins;
- magnitude).



Product	Acronym	Resolution	Reference
TMPA	TR/aTR	0.250	Huffman et al. (2007)
PERSIANN	PE/aPE	0.25	Sorooshian et al. (2000);
	CM/aCM	J-nourly	Joyce et al. (2004); Xie et al. (201
CMORPH	hC/ahC	0.072°	
	IIC/ aIIC	half-hourly	
Rain Gauge	G	108 gauges,	hourly; reference data

# **Flood Event Database**

Our study selects flood events from the Zoccatelli et al. (2015) database

satisfyig the following criterion:						Kela	Relative Error and Correlation (CC)										
i) Study period: May to November of 2002 to 2010:						Products	Cumulative Depth		Centroid		Peakedness		Peak	CC			
<ul><li>ii) Event type: rain flood and flash flood.</li></ul>						Rainfall Flood	CC	Rainfall Flood	CC	Rainfall F	Flood	CC	Flow				
					TR	0.22 -0.03	0.53	0.60 0.00	0.15	0.86	0.19	0.35	-0.12	0.62			
Event Event Num. Type	Time	Mean Event Properties					aTR	0.00 -0.02	-0.03	0.60 0.52	-0.05	0.81	-0.01	0.12	-0.28	0.48	
	Event Type	Series	Duration	Depth	SD●	Initial Soil	Runoff	PE	-0.20 0.40	0.08	0.11 -0.04	0.10	0.49	-0.18	0.25	-0.28	0.86
			(h)	(mm)	(mm/h)	Moisture	Coefficient	aPE	-0.12 -0.30	0.29	0.08 -0.24	0.31	0.42	-0.04 -	-0.02	-0.01	0.68
116 F	Rain	Rainfall	45	47.0	1.76	57%	22%	CM	-0.45 -0.17	0.11	0.44 -0.21	0.07	0.48	-0.07 -	-0.30	0.13	0.05
	Flood	Runoff	104	22.6	0.08			aCM	-0.21 -0.46	0.44	0.44 -0.62	0.18	0.49	-0.36 -	-0.14	-0.02	0.06
12 Flash Flood	Flash	ash Rainfall	32	54.4	2.39	58%	350/2	hC	-0.45 0.12	0.01	0.16 -0.21	0.15	0.26	-0.34 -	-0.16	-0.47	0.73
	Runoff	62	31.7	0.33	5070	5570	ahC	-0.22 -0.03	0.09	0.14 0.13	-0.23	0.23	-0.44	0.02	-0.04	0.16	

# **Characteristics and Dependencies of Error in Satellite-based Flood Event Simulations**

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Cumulative Depth

### 

$$V_X = \int_{T_X} X(t) \, dt$$

$$Ct_{X} = \frac{\int_{T_{X}} t \cdot X(t) dt}{\int_{T_{X}} X(t) dt}$$

$$Sd_X = \sqrt{\frac{\int_{T_X} (t - Ct_X)^2 X(t) dt}{\int_{T_X} X(t) dt}}$$

$$\gamma = \left| \frac{EM_r}{EM_p} \right|$$



Centroid

i) The shape-related parameters are better captured by the satellite compared to the volumetric one. ii) Gauge adjustments have effects on the volumetric parameter but not on the shape-related ones. iii) Systematic error of the hydrograph properties parameters is uncorrelated with those of the hyetograph. iv) Dampening effects are revealed in systematic error for shape-related parameters and random error of time series. v) Linearity in random error dampening effect is stronger for events with higher runoff coefficient. **References:** 

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Spreadness

## Conclusions