



World Meteorological Organization

Weather • Climate • Water

# Black Sea and Middle East (BSMEFFG) Flash Flood Guidance Verification Results



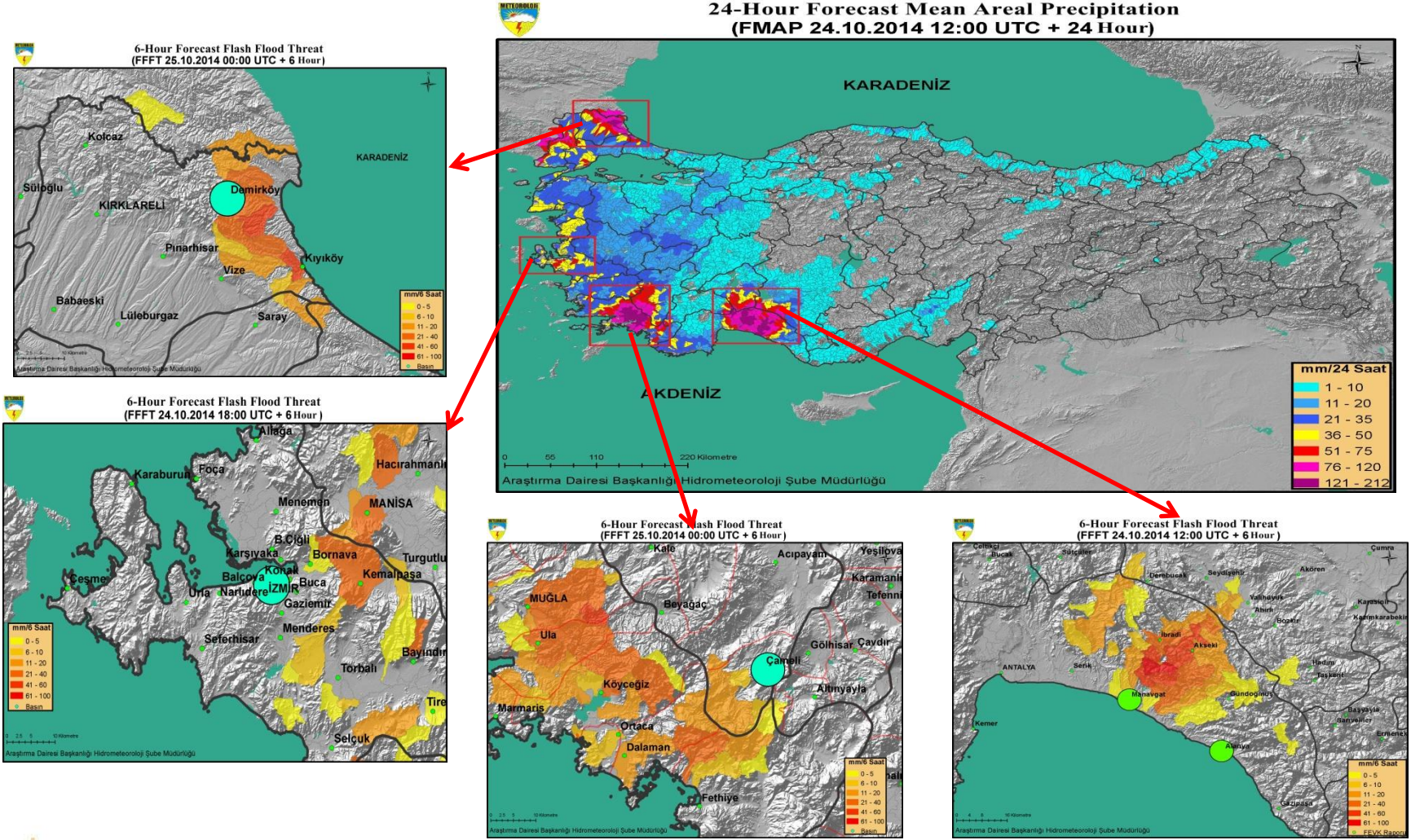
# Aims of Verification

WMO specifies that the main goal of a verification process is to constantly improve the quality of the services (skill and accuracy) including:

- Establishment of a skill and accuracy reference against which subsequent changes in forecast procedures or introduction of new technology can be measured,
- Identification of the specific strengths and weaknesses in a forecaster's skill and the need for forecaster training and similar identification of a model's particular skill and the need for model improvement, and
- Information to the management about a forecast program past and current level of Skill to plan future improvements; information can be used in making decisions concerning the organizational structure, modernization and restructuring the national Hydrometeorological services.



# Methodology

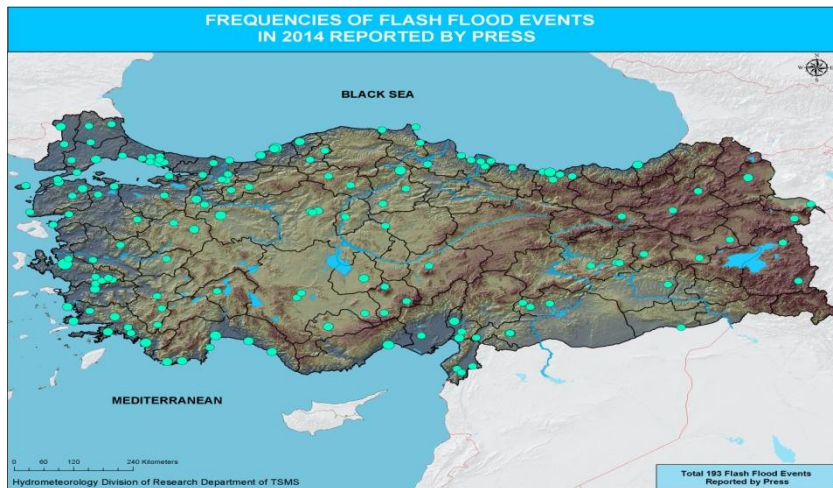
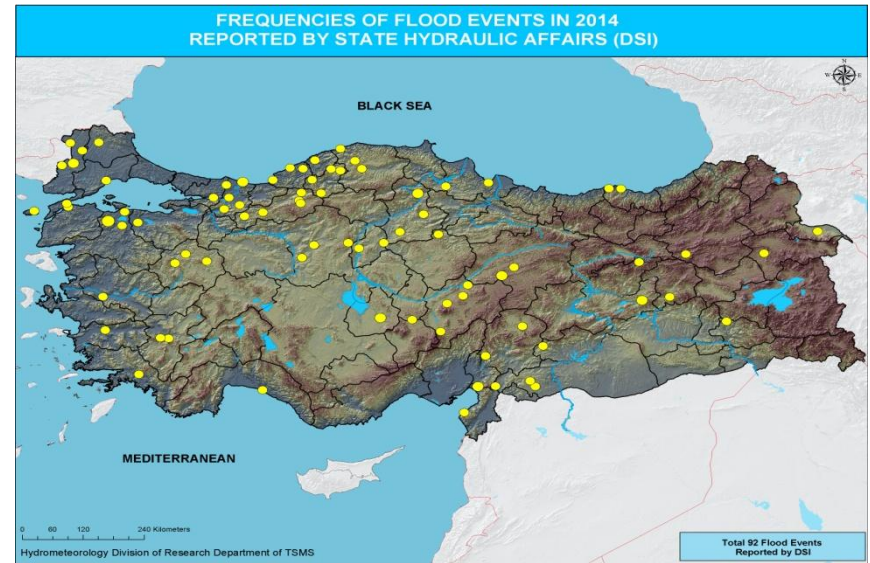
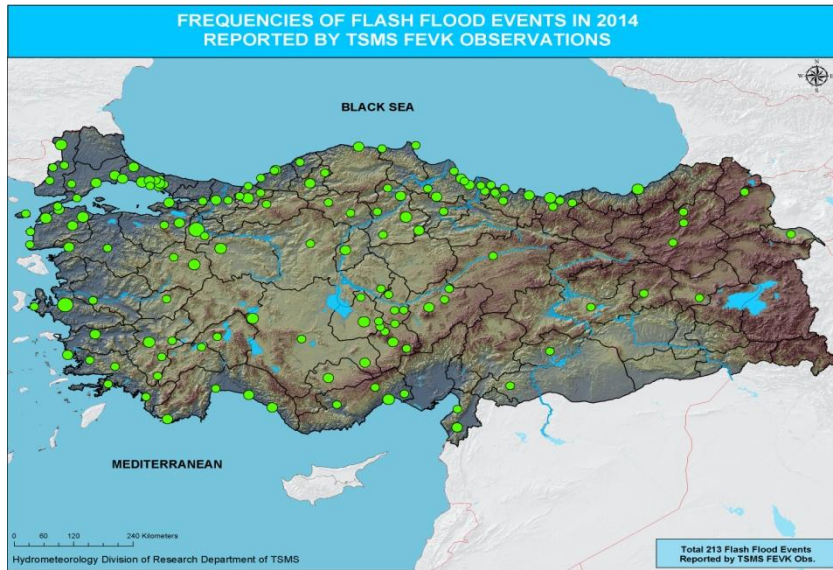


# TSMS FEVK OBSERVATIONS

No	Std.No	Lat	Lon	Evet start/finish date/time	Precipit Amount (mm)	Remarks	Event Loc. I	Event Loc. II	Event Loc. III	Event IV	Event loc.Lat	Event. Loc. Long	Images	Bulletin
1	17220	38.3949	27.0819	28.01.2014 15:13 - 29.01.2014 07:03	45.6	Shower and heavy shower were effective in Izmir city center and Urla, Uzunkuyu, Gümüldür, Alağa, Kemalpaşa, Menemen, Seferihisar, Çeşme and Dikili towns causing flooding, land slide and property damages.	Izmir				38.3949	27.0819		✓
2	17340	36.7808	34.6031	03.03.2014 03:30 - 04.03.2014 09:15	69.8		Mersin				36.7808	34.6031		X
3	17292	37.2095	28.3668	03.03.2014 06:05 - 04.03.2014 04:15	123.2	Izmir had floods but there were no human losses.	Muğla				37.2095	28.3668		✓
4	17265	37.7553	38.2775	09.03.2014 20:35 - 10.03.2014 22:05			Adıyaman				37.7553	38.2775		✓
5	17155	39.4171	29.9891	27.04.2014 11:20 - 27.04.2014 11:48	34.6	Heavy shower and hail storm occurred in Kütahya province on 27.04.2014 between 11:20 - 11:48 am. Floods occurred in the following districts Celebi, Cumhuriyet, Bahçelievler ve Ziraat (Karapınar).	Kütahya				39.4171	29.9891		✓

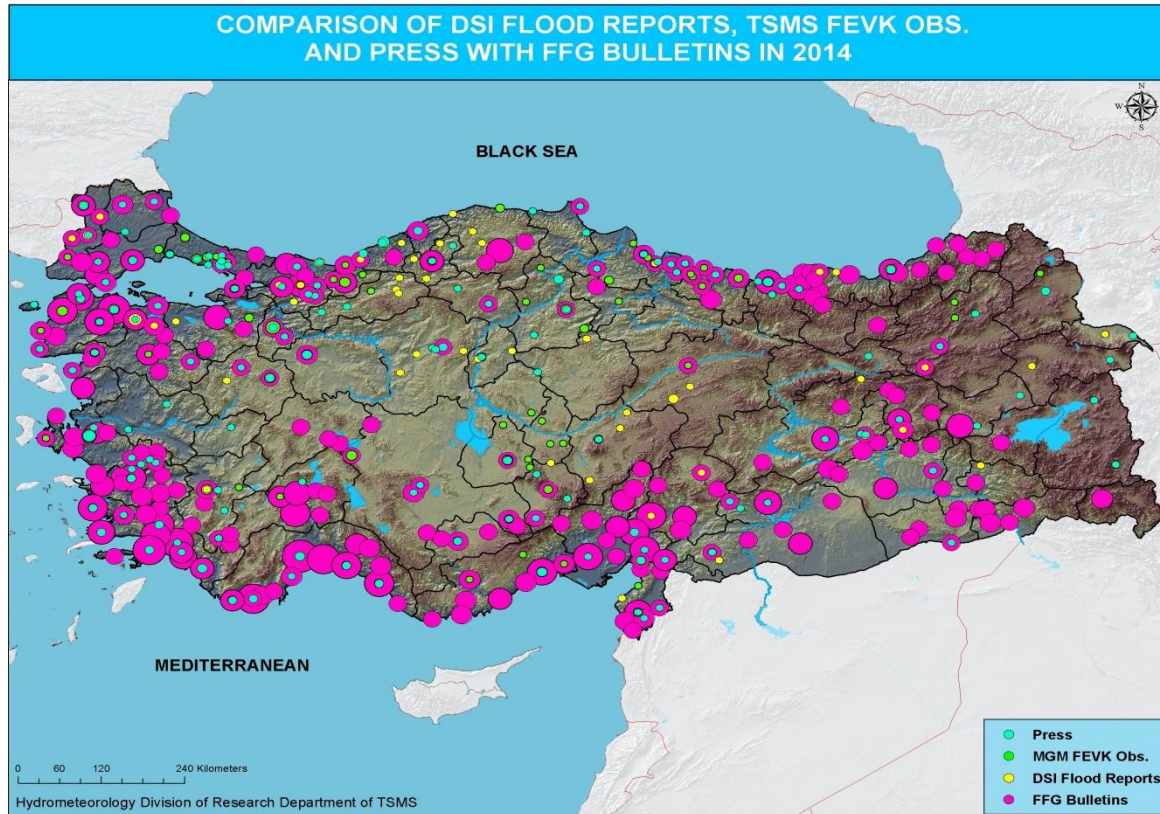


# Flash Flood Event Reports



Total 213 flood events were reported by TSMS FEVK obs. While 89 and 193 events were reported by DSI and Press respectively.

# Spatial Distribution of Events and Flash Flood Bulletins in 2014



# Contingency Table for 2014

	Observations (TSMS, DSI, Press)			
		YES	NO	$\Sigma$
Bulletins 2014	YES	58(a)	10 (b)	68
	NO	48 (c) (DSi+MGM+Basin)	249 (d)	297
	$\Sigma$	106	259	365

Hit Rate (POD): $(a/(a+c))$	0.55
False Alarm Rate (FAR): $(b/(a+b))$	0.15
False Alarm Rate (POFD): $b/(b+d)$	0.04
Threat Score: $(a/(a+b+c))$	0.5



# Contingency Table for 2013

	Observations (TSMS, DSI, Press)			
		YES	NO	Σ
Bulletins (21 May 2012-17 June 2013)	YES	43 (a)	25 (b)	68
	NO	18 (c)	306 (d)	324
	Σ	61	331	392

Hit Rate (POD): $(a/(a+c))$	0.70
False Alarm Rate (FAR): $(b/(a+b))$	0.36
False Alarm Rate (POFD): $b/(b+d)$	0.07
Threat Score: $(a/(a+b+c))$	0.5







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# Thank you for your attention

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