

Overland flow (DIS)CONNECTIVITY in a new vineyard under steep slope conditions in the Spanish Pyrenees: **EFFECT OF DEM RESOLUTION AND TERRAIN PREPARATION**

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FROM PREVIOUS STUDIES

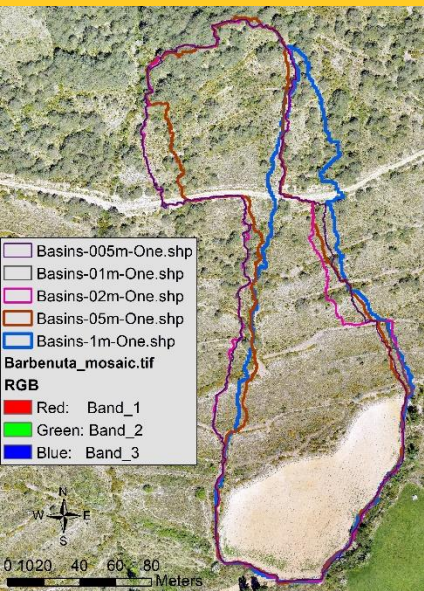
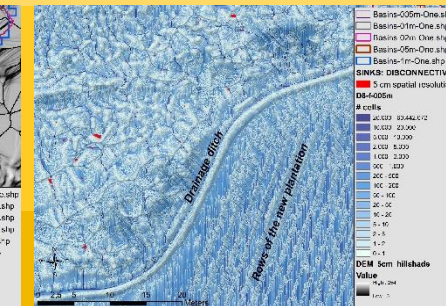
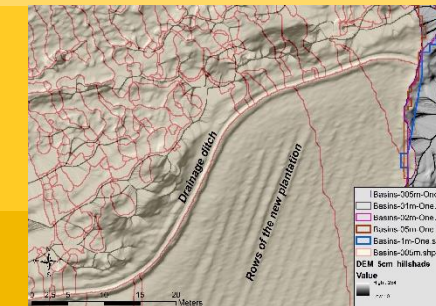
- The ability of **identifying disconnected areas (DA)** depends on the DEM resolution, DEM accuracy and flow accumulation algorithm.
- Tillage practices and terrain preparation influence the occurrence of permanent/ temporal DA.

RESEARCH GOAL

EFFECT OF **DEM RESOLUTION** AND THE PRESENCE OF A **DRAINAGE DITCH** AND **FOREST TRAILS** ON DISCONNECTED AREAS IN A STEEP ($\bar{S}=29\%$) FARMLAND AREA WITH A NEW VINEYARD.

METHODS

A professional **drone** was used to obtain 5 Structure-from-Motion (SfM)-derived DEMs. We used combined information of the DEMs before and after filling the sinks.



RESULTS

DEM Resolution	PS=Pixel size m2	RT=SD-slope %	Ratio RT/PS	Total area m2	Sub-basins				Disconnected areas		
					#	size-mean	size-median	size-sd	#	area	%totalArea
1	1	25	0,2	17010	34	500	68	920	21	41	0,24%
0,5	0,25	45	1,8	20514	341	60	15	178	292	143	0,70%
0,2	0,04	81	20,3	22398	1079	21	5	69	903	118	0,53%
0,1	0,01	114	113,6	22852	1272	18	4	71	928	58	0,25%
0,05	0,0025	159	636,8	22807	1907	12	2	49	1283	44	0,19%

THESE RESULTS PROVE THE **IMPOSSIBILITY OF DEFINING A UNIQUE OVERLAND FLOW PATTERN AND SUB-CATCHMENT BOUNDARY**.

Further research should be focused on the role of runoff depth and how the effect of manmade landscape elements (drainage ditch, forest trail) and tillage practices ON **DISCONNECTIVITY** may depend on rainfall depth and intensity, and indirectly on plant growth.