

ERZURUM FIELD CAMPAIGN, 1-2 MARCH

a)



b)



c)



It was not an intercomparison, but a demonstration to many people who was not familiarized with field measurements

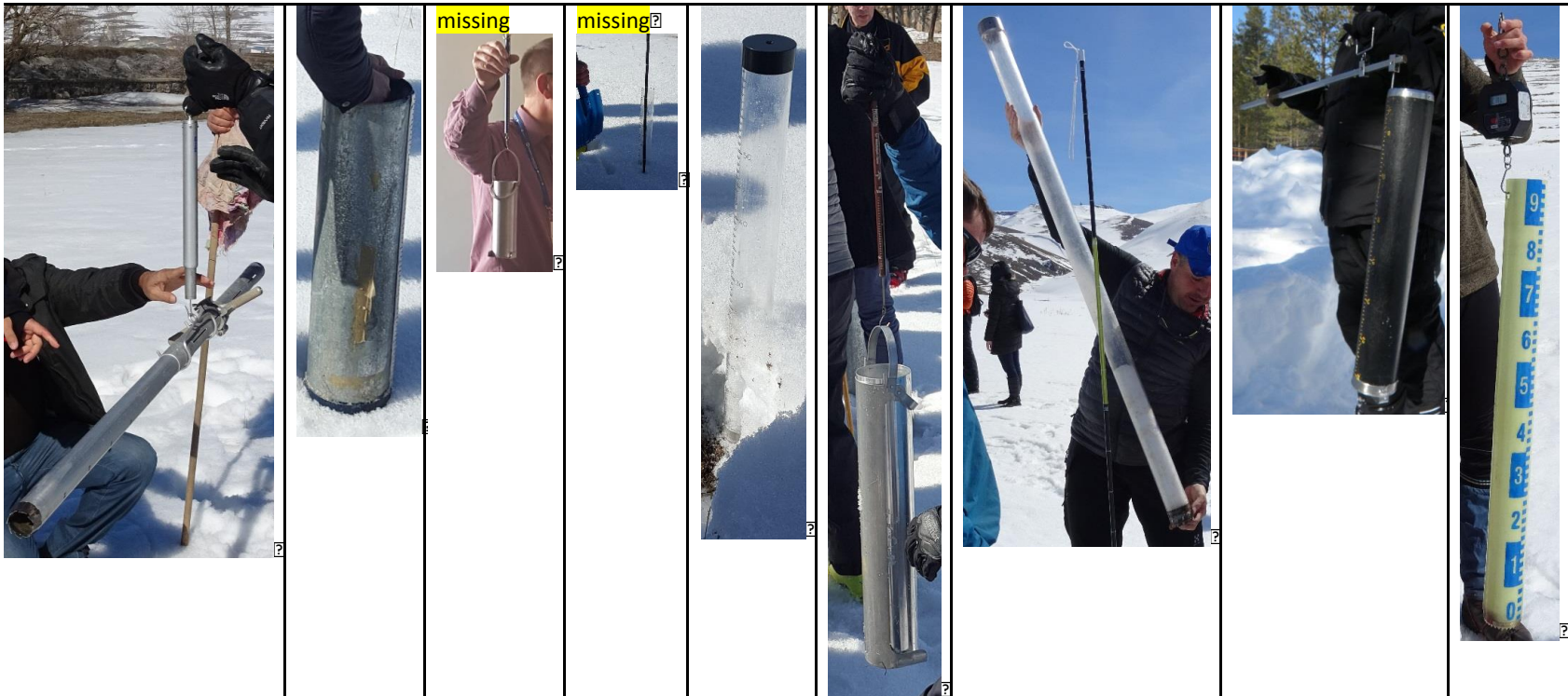
2 sites near SNOTEL around 20*10 meters, people who uses different SWE samplers did transects and people had the opportunity to observe and measure snow with all of them

Around 1h30min in each site



SWE measurement instruments in field campaign in Erzurum Turkey in 1 March 2016

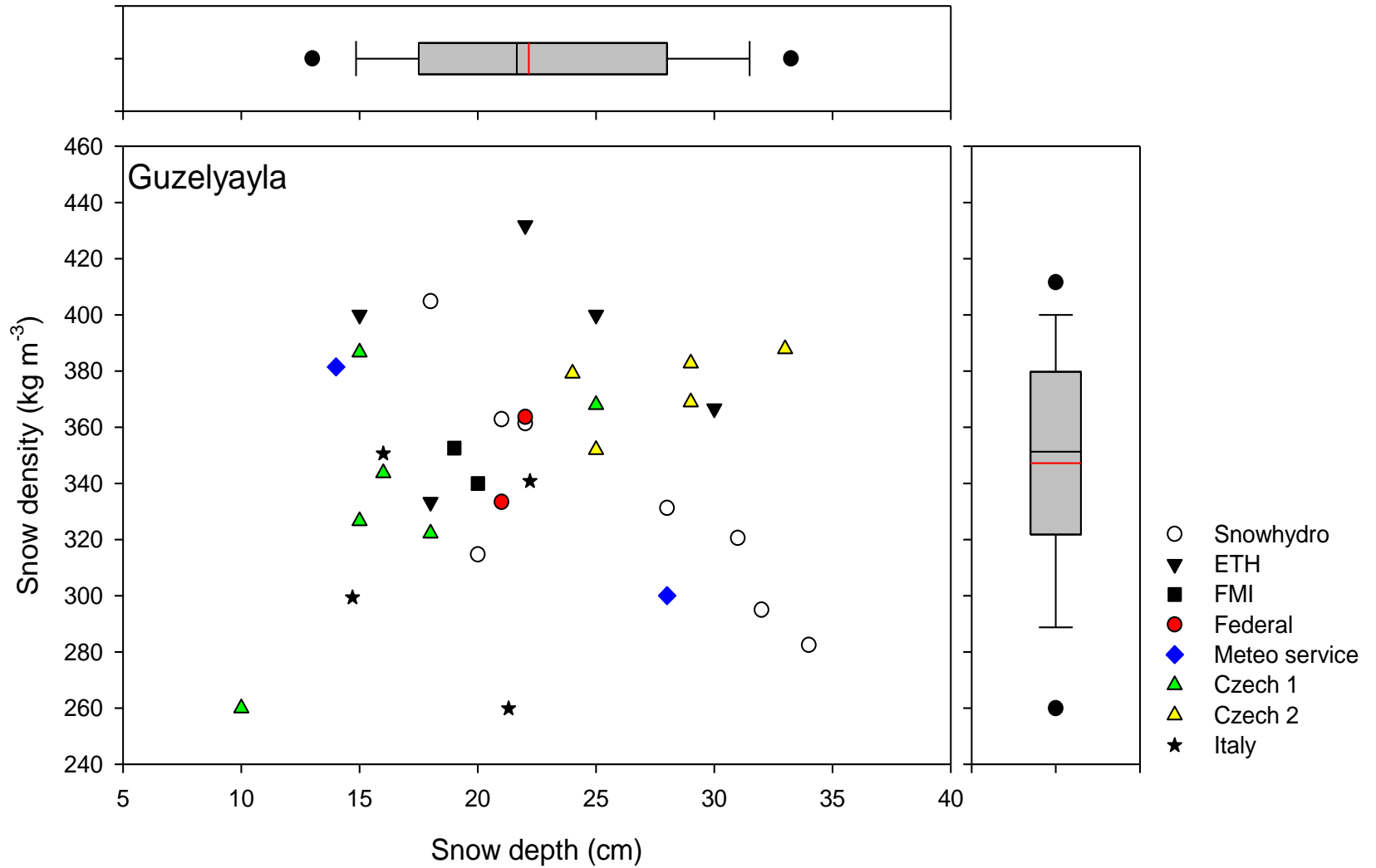
?



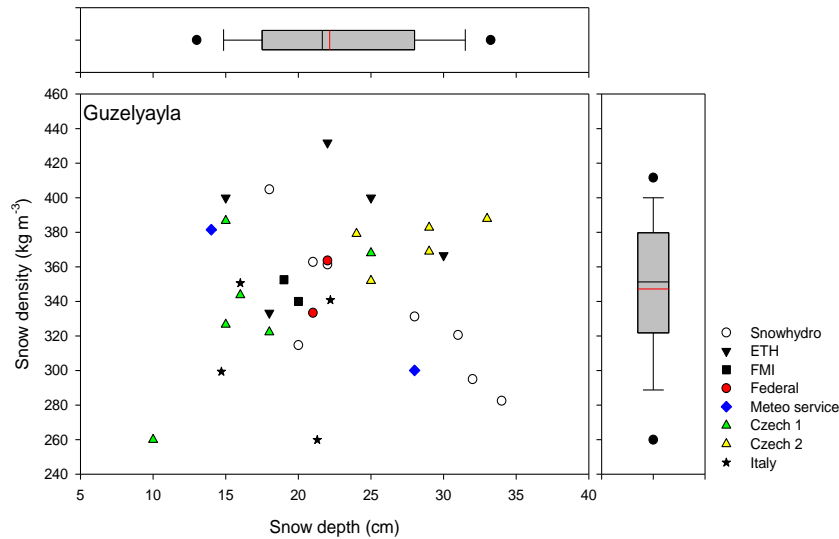
101	102	103	104	105	106	107	108	109
Turkey	Turkey	Switzerland	Italy	Italy	Spain	Spain	Finland	Slovakia
Federal Snow Sampler (USA)	TSMS tube	CRREL tube	CRREL tube	?	ETH-Sonde	Snowhydro	FMI	Czech and
No	no	yes	Yes	no	yes	no	yes	no
Weighting	Melting Weighting	Weighting	Weighting	Weighting	Weighting	Weighting	Weighting	Weighting
No	Yes	No	Yes	Yes	no	yes	no	no
Kg	mm	?mm	kg	Kg	kg	kg	mm	mm

?

Guzelyayla 2065 m asl



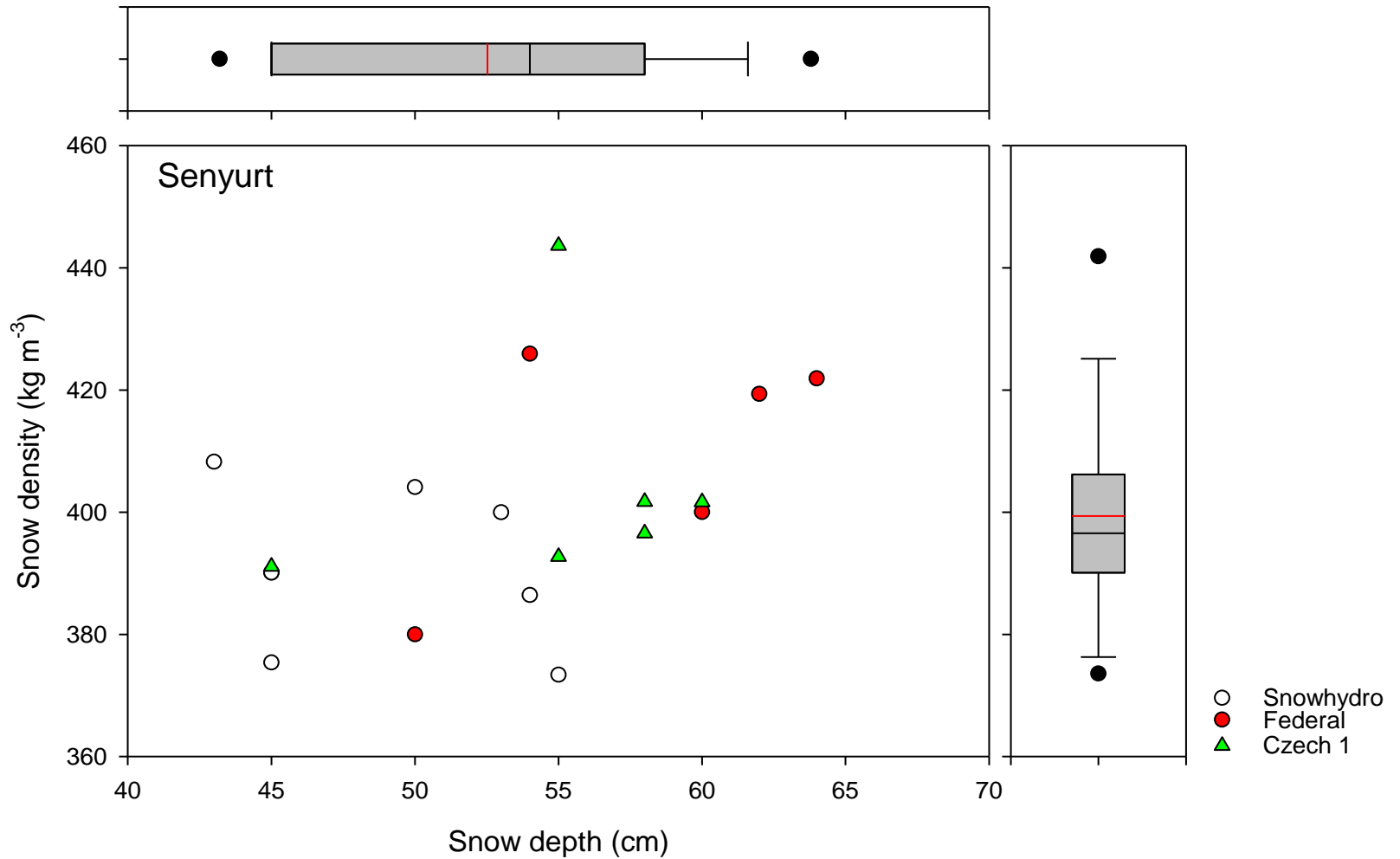
Guzelyayla 2065 m asl



SNOTEL: 20cm

	Snow density (kg m ⁻³)	Snow depth (cm)	SWE (mm)
ETH	383.3	22	78.5
Czech profile 2	374.1	28	105
Federal	348.5	21.5	75
FMI	346.3	19.5	67.5
Meteoservice	340.7	21	68.7
Italy	338	19	63
Czech profile 1	334.5	16.5	56.3
Snowhydro	334	25.75	80.6

Senyurt 2250 m a.s.l.



Senyurt 2250 m a.s.l.

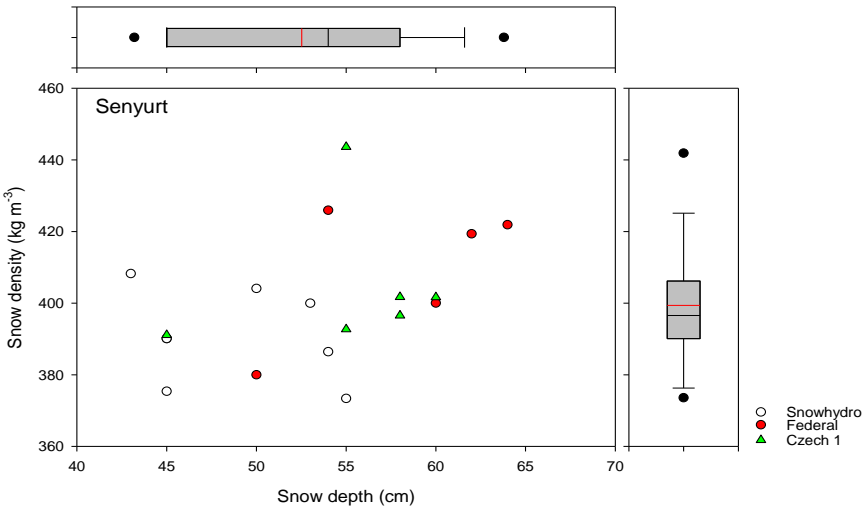


Table 1. Average snow depth, snow density and SWE in the different profiles (using different SWE samplers)

Profile	Snow density (kg m ⁻³)	Snow depth (cm)	SWE (mm)
ETH	383.3	22	78.5
Czech profile 2	374.1	28	105
Federal	348.5	21.5	75
FMI	346.3	19.5	67.5
Meteoservice	340.7	21	68.7
Italy	338	19	63
Czech profile 1	334.5	16.5	56.3
Snowhydro	334	25.75	80.6





Conclusions from the field campaigns

- There are different devices to measure SWE and snow density. Their main differences are length, the diameter of the tube and the possibility (or not) to be directly weighted (and in some cases converted to SWE) from the tube.
- It is difficult to establish which devices are better or worse, it mainly depends on the snow depth and snow characteristics (hardness, wetness, sticky snow, etc). In this particular case (shallow and soft snow), short and wide tubes were easier to use. Long tubes and those that need to be emptied into a bag were the less useful at that day (i.e. Snowhydro).
- Electronic scales are much more accurate compared to mechanical ones. The first ones depend on the batteries and may be problematic under very cold conditions.
- The skill of the person who is measuring and wind (that affects the weighting) may affect the accuracy of the obtained variables.
- The experimental design of the field campaign does not allow to properly distinguishing to which extent the differences in snow density and SWE are due to the variability of snow characteristics or to the used device or human errors.