

AdriaArray Seismic Network

Petr Kolínský (Institute of Geophysics, Prague)

Thomas Meier (Uni Kiel)

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AdriaArray Seismic Network Working Group

1. Meeting of the AASG Steering Committee, online, May 19, 2022



INSTITUTE OF GEOPHYSICS
OF THE CZECH ACADEMY OF SCIENCES

Orfeus EPOS
EUROPEAN PLATE OBSERVING SYSTEM

permanent station inventory: sheet of 2517 stations and spots (rows) x 25 “properties” (columns)

StationInventory.xls - OpenOffice.org Calc

Soubor Úpravy Zobrazit Vložit Formát Nástroje Data Okno Nápověda

A1 = name

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	difficulty	
1	name	Name					town	city	previous sheet	round	name	corner in [sec]	yes=1/no=0	name	table if r1=wors	operator	institute	no=0	EID	center	GB	DS	sug	any			
2	Network	Name	Latitude	Longitude	elevation	show	Site name	country	Housing*	Sensor pos	Sensor type	Corner period	Possible spot*	Digitizer	Sampling	Qual	Institut	Struct	prelimin	DA	OA	no=0	Be	SN	sug		
3	Network	station	WGS84	WGS84	[m]		village /	country	see remark on	rock/corr	marketing	sensor low	if corner<60s	marking	marketing	higher	active	network	onlines	=IDA	de/da	Boh	DS	hrs	su		
79	HT	ALN	40.885	26.046	1	Alexandroupolis	GR	CMG-3ESP 100s (200)	100		Janus-Trident 40 Vpp (Gain 1)																
80	BW	ALTM	48.995167	11.519922	0	Beilngries	D	Le3D-1	1																		
81	HU	AMBH	46.350100	20.725800	1	Ambrozfalva	H	G120	120																		
82	HL	AMGA	36.831561	25.893836	1	Amorgosisland	GR	Building	concret	Lennartz20s+CMG-5T	20		0	SMART24	100	4	NOA	Evan	1	1	NOA	1	1				
83	HP	AMPL	38.9224	21.2135	1	Ampelaki	GR	Urban free field	concret	TrilCompact120s	120			Geobit SR32	100	3	UPAT	Soko	1	1	NOA	1	1				
84	RO	AMRR	44.6102	27.3351	67	Amara	RO	nderground shaft	concret	CMG40T	30	1	Q330	100	3	NIEP		1	0	0	0	0					
85	HP	AMT	37.5324	21.7089	1	Artemida	GR	Free field	bedrock	G120s	120			Guralp Minim	100	2	UPAT	Soko	1	1	NOA	1	1				
86	IV	AMUR	40.9071	16.6041	443	I	I		NANOMETRICS TRILL	40																	
87	ANAC		50.073800	17.378000	1	Anenský vrch	CZ		L43D	1																1	
88	IX	AND3	40.9298	15.3331	905	I	I		GEOTECH KS-2000ED	30																	
89	HL	ANKY	35.86704	23.30117	1	AntikythiraIsland	GR	Free field	bedrock	G60s	60			PS6-SC	100	1	NOA	Evan	1	1	NOA	1	1				
90	TH	ANNA	50.88902	12.64499	0		D		CMG-3ESPC 60s	60																	
91	BE	ANSA	50.668	5.507	180	0	Ans	B	A		1																
92	KO	ANTB	36.8998	30.6538	20	0	TR			120	120																
93	HP	ANX	38.5933	21.9209	1	AnoXora	GR	Urban free field	concret	G120s	120			Guralp DM24	100	2	UPAT	Soko	1	1	NOA	1	1				
94	IV	AOI	43.55017	13.602	530	I	I		NANOMETRICS TRILL	40																	
95	HT	AOS2	39.1478	23.8436	1	Alonissos-2	GR		CMG-3ESP 100s (200)	100				Janus-Trident 40 Vpp (Gain 1)													
96	HL	APE	37.07274	25.52301	1	Apeiranthos,Naxos	GR	Special	bedrock	STS2	120			PS6-SC	100	1	NOA	Evan	1	1	NOA	1	1				
97	IV	APEC	43.55846	12.41991	488	I	I		NANOMETRICS TRILL	40																	
98	IV	APPI	46.47868	11.22813	1056	I	I		LENNARTZ LE3D-5S	5																	
99	IV	APRC	41.75738	15.54308	672	I	I		NANOMETRICS TRILL	120																	
100	MN	AQU	42.354	13.405	1	L'Aquila, Italy	I		STS2	120																	
101	FR	ARBF	43.491700	5.332500	1	technopole de l'Arbois - 13001,	F		STS2	120																	
102	CA	ARBS	42.434492	1.533754	0		E		G120	120																	
103	RO	ARCB	44.4667	26.0758	125	1	Arcul de Triumf	RO	building	concret	Episensor_2g_2_5vf	2	1	k2	100	4	NIEP		1	0	0	0	0				
104	IV	ARCI	42.8519	11.4754	1080	I	I		NANOMETRICS TRILL	40																	
105	NL	ARCN	51.5013	6.1942	0	0	NL			CMG3ES																	
106	RO	ARCR	47.0855	24.3537	385	1	Arcalia	RO	nderground shaft	concret	STS2	120		Q330	100	3	NIEP		1	0	0	0	0				
107	HL	ARG	36.21356	28.12122	1	Archagelos,Rhodes	GR	Special	bedrock	Lennartz20s	20	0	DR24	100	2	NOA	Evan	1	1	NOA	1	1					
108	KO	ARMT	40.5683	28.866	320	0	TR			120s,	120																
109	RO	ARR	45.3657	24.8332	871	1	Vidru	RO	special	bedrock	CMG3ESP	59		Q330	100	3	NIEP		1	1	NIEP	1	1				
110	IV	ARRO	42.57917	12.76567	253	1	I			LENNARTZ LE3D-5S	5																
111	OE	ARSA	47.250500	15.523200	1	Arzberg, Steiermark	A		STS2	120																	
112	FR	ARTF	43.588200	5.806700	1	Artigues - 83006 - Var - Provence	F		Trillium 120PH	120																	
113	IV	ARVD	43.49807	12.94153	461	I	I		NANOMETRICS TRILL	40																	
114	RO	ASE	44.4445	26.0904	85	1	Academia de Studii Economice	RO	building	concret	Episensor_2g_2_5vf	2	1	k2	100	4	NIEP		1	0	0	0	0				
115	IV	ASOL	45.8003	11.9023	181	I	I		KINEMETRICS EPISE	1																	
116	IV	ASQU	43.7967	11.7893	860	I	I		NANOMETRICS TRILL	120																	
117	IV	ASSB	43.0426	12.6587	734	I	I		NANOMETRICS TRILL	40																	
118	HA	ATAL	38.6926	23.0213	1	Atalanti	GR		G120s	120				100		NKUA	G.Ka	1	1	NOA	1	1					
119	IV	ATBU	43.47571	12.54828	1000	I	I		LENNARTZ LE3D-5S	5																	
120	IV	ATCC	43.18514	12.63994	557	I	I		KINEMETRICS EPISE	1																	
121	FR	ATE	43.085800	-0.700700	0	Arette - 64040 - Pyrenees-Atlan	F		STS2	120																	
122	IV	ATFO	43.3666	12.5715	960	I	I		NANOMETRICS TRILL	40																	
123	HL	ATH	37.97384	23.71767	1	Athens	GR	Special	bedrock	STS2	120			DR24	100	1	NOA	Evan	1	1	NOA	1	1				
124	HA	ATHU	37.9665	23.7845	1	AthensUniversity	GR		G60s	60				100		NKUA	G.Ka	1	1	NOA	1	1					
125	IV	ATLO	43.31516	12.40726	584	I	I		LENNARTZ LE3D-5S	5																	

- Python script (352 lines) to distill the required information from the sheet
- produces files for plotting by GMT (script 1428 lines)

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d: > 16AdriaArray > stations > xmaps2 > extract.py
  85     citacBB30 = citacBB30 + 1
  86     outBB30.write ("%\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]))) # s
  87     csvBB30.write ("%\n" % (str(inventory.iloc[n,2]) + ' ' + str(inventory.iloc[n,3]) + '\n')
  88     csvBB300.write("%\n" % (str(inventory.iloc[n,2]) + ' ' + str(inventory.iloc[n,3]) + ',30
  89     csvBB3040.write("%\n" % (str(inventory.iloc[n,2]) + ' ' + str(inventory.iloc[n,3]) + ',40
  90     labBB30.write ("%\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]) + '\t'
  91     # BB30 out
  92     if inventory.iloc[n,5] == 0 and inventory.iloc[n,11] >= 30 and inventory.iloc[n,11] < 40: # to
  93         citacBB30 = citacBB30 + 1
  94         outBB30.write("%\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]))) # st
  95         labBB30.write("%\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]) + '\t'
  96     # BB 40 in
  97     if inventory.iloc[n,5] == 1 and inventory.iloc[n,11] >= 40 and inventory.iloc[n,11] < 50: # to
  98         citacBB40 = citacBB40 + 1
  99         outBB40.write ("%\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]))) # s
 100        csvBB40.write ("%\n" % (str(inventory.iloc[n,2]) + ' ' + str(inventory.iloc[n,3]) + '\n'
 101        csvBB400.write("%\n" % (str(inventory.iloc[n,2]) + ' ' + str(inventory.iloc[n,3]) + ',30
 102        csvBB4040.write("%\n" % (str(inventory.iloc[n,2]) + ' ' + str(inventory.iloc[n,3]) + ',40
 103        labBB40.write ("%\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]) + '\t'
 104     # BB 40 out
 105     if inventory.iloc[n,5] == 0 and inventory.iloc[n,11] >= 40 and inventory.iloc[n,11] < 50: # to
 106         citacBB40 = citacBB40 + 1
 107         outBB40.write("%\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]))) # st
 108         labBB40.write("%\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]) + '\t'
 109     # BB 60 in
 110     if inventory.iloc[n,5] == 1 and inventory.iloc[n,11] >= 50: # to
 111         citacBB60 = citacBB60 + 1
 112         outBB60.write ("%\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]))) # s
 113         csvBB60.write ("%\n" % (str(inventory.iloc[n,2]) + ' ' + str(inventory.iloc[n,3]) + '\n'
 114         csvBB600.write("%\n" % (str(inventory.iloc[n,2]) + ' ' + str(inventory.iloc[n,3]) + ',30
 115         csvBB6040.write("%\n" % (str(inventory.iloc[n,2]) + ' ' + str(inventory.iloc[n,3]) + ',40
 116         labBB60.write ("%\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]) + '\t'
 117     # BB 60 out
 118     if inventory.iloc[n,5] == 0 and inventory.iloc[n,11] >= 50: # to
 119         citacBB60 = citacBB60 + 1
 120         outBB60.write("%\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]))) # st
 121         labBB60.write("%\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]) + '\t'
 122     # UNKN in
 123     if inventory.iloc[n,5] == 1 and math.isnan(inventory.iloc[n,11]) and math.isnan(inventory.iloc
 124         citacUNKN = citacUNKN + 1
 125         outUNKN.write("%\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]))) # sta
 126         labUNKN.write("%\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]) + '\t' +
 127         csvUNKN.write("%\n" % (str(inventory.iloc[n,2]) + ' ' + str(inventory.iloc[n,3]) + ','
 128     # UNKN out
 129     if inventory.iloc[n,5] == 0 and math.isnan(inventory.iloc[n,11]) and math.isnan(inventory.iloc
 130         citacUNKN0 = citacUNKN0 + 1
 131         outUNKN0.write("%\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]))) # st
 132         labUNKN0.write("%\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]) + '\t'
 133     # SPOT - always in
 134     if math.isnan(inventory.iloc[n,11]) and inventory.iloc[n,12] == 1: # pokud je corner pr
 135         citacSPOT = citacSPOT + 1

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when the „final“ version of inventory and scripts are ready, they will be **freely available** for anyone for plotting the station maps

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Soubor Projekt Upravy Hledat Zobrazit Formát Nástroje Skripty HTML Nastavení Okno Napověda
1. aktuálny.html 2. ukutekencne20.html 3. fokyzkaj20.html 4. menu.html 5. zapisy.html 6. index.html 7. fero.cs 8. orbis.sh 9. global.sh 10. availableMap.sh 11. figMap.sh 12. figDensity.sh 13. figAdriaGP.sh
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490 500 510 520 530 540 550 560 570 580 590 600 610 620 630 640 650 660 670 680 690 700 710 720 730 740 750 760 770 780 790 800 810 820 830 840 850 860 870 880 890 900 910 920 930 940 950 960 970 980 990 1000 1010 1020 1030 1040 1050 1060 1070 1080 1090 1100 1110 1120 1130 1140 1150 1160 1170 1180 1190 1200 1210 1220 1230 1240 1250 1260 1270 1280 1290 1300 1310 1320 1330 1340 1350 1360 1370 1380 1390 1400 1410 1420 1430 1440 1450 1460 1470 1480 1490 1500 1510 1520 1530 1540 1550 1560 1570 1580 1590 1600 1610 1620 1630 1640 1650 1660 1670 1680 1690 1700 1710 1720 1730 1740 1750 1760 1770 1780 1790 1800 1810 1820 1830 1840 1850 1860 1870 1880 1890 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010 2020 2030 2040 2050 2060 2070 2080 2090 2100 2110 2120 2130 2140 2150 2160 2170 2180 2190 2200 2210 2220 2230 2240 2250 2260 2270 2280 2290 2300 2310 2320 2330 2340 2350 2360 2370 2380 2390 2400 2410 2420 2430 2440 2450 2460 2470 2480 2490 2500 2510 2520 2530 2540 2550 2560 2570 2580 2590 2600 2610 2620 2630 2640 2650 2660 2670 2680 2690 2700 2710 2720 2730 2740 2750 2760 2770 2780 2790 2800 2810 2820 2830 2840 2850 2860 2870 2880 2890 2900 2910 2920 2930 2940 2950 2960 2970 2980 2990 3000 3010 3020 3030 3040 3050 3060 3070 3080 3090 3100 3110 3120 3130 3140 3150 3160 3170 3180 3190 3200 3210 3220 3230 3240 3250 3260 3270 3280 3290 3300 3310 3320 3330 3340 3350 3360 3370 3380 3390 3400 3410 3420 3430 3440 3450 3460 3470 3480 3490 3500 3510 3520 3530 3540 3550 3560 3570 3580 3590 3600 3610 3620 3630 3640 3650 3660 3670 3680 3690 3700 3710 3720 3730 3740 3750 3760 3770 3780 3790 3800 3810 3820 3830 3840 3850 3860 3870 3880 3890 3900 3910 3920 3930 3940 3950 3960 3970 3980 3990 4000 4010 4020 4030 4040 4050 4060 4070 4080 4090 4100 4110 4120 4130 4140 4150 4160 4170 4180 4190 4200 4210 4220 4230 4240 4250 4260 4270 4280 4290 4300 4310 4320 4330 4340 4350 4360 4370 4380 4390 4400 4410 4420 4430 4440 4450 4460 4470 4480 4490 4500 4510 4520 4530 4540 4550 4560 4570 4580 4590 4600 4610 4620 4630 4640 4650 4660 4670 4680 4690 4700 4710 4720 4730 4740 4750 4760 4770 4780 4790 4800 4810 4820 4830 4840 4850 4860 4870 4880 4890 4900 4910 4920 4930 4940 4950 4960 4970 4980 4990 5000 5010 5020 5030 5040 5050 5060 5070 5080 5090 5091 5092 5093 5094 5095 5096 5097 5098 5099 5100 5101 5102 5103 5104 5105 5106 5107 5108 5109 5110 5111 5112 5113 5114 5115 5116 5117 5118 5119 5120 5121 5122 5123 5124 5125 5126 5127 5128 5129 5130 5131 5132 5133 5134 5135 5136 5137 5138 5139 5140 5141 5142 5143 5144 5145 5146 5147 5148 5149 5150 5151 5152 5153 5154 5155 5156 5157 5158 5159 5160 5161 5162 5163 5164 5165 5166 5167 5168 5169 5170 5171 5172 5173 5174 5175 5176 5177 5178 5179 5180 5181 5182 5183 5184 5185 5186 5187 5188 5189 5190 5191 5192 5193 5194 5195 5196 5197 5198 5199 5200 5201 5202 5203 5204 5205 5206 5207 5208 5209 5210 5211 5212 5213 5214 5215 5216 5217 5218 5219 5220 5221 5222 5223 5224 5225 5226 5227 5228 5229 5229 5230 5231 5232 5233 5234 5235 5236 5237 5238 5239 5239 5240 5241 5242 5243 5244 5245 5246 5247 5248 5249 5249 5250 5251 5252 5253 5254 5255 5256 5257 5258 5259 5259 5260 5261 5262 5263 5264 5265 5266 5267 5268 5269 5269 5270 5271 5272 5273 5274 5275 5276 5277 5278 5279 5279 5280 5281 5282 5283 5284 5285 5286 5287 5288 5289 5289 5290 5291 5292 5293 5294 5295 5296 5297 5298 5299 5299 5300 5301 5302 5303 5304 5305 5306 5307 5308 5309 5309 5310 5311 5312 5313 5314 5315 5316 5317 5318 5319 5319 5320 5321 5322 5323 5324 5325 5326 5327 5328 5329 5329 5330 5331 5332 5333 5334 5335 5336 5337 5338 5339 5339 5340 5341 5342 5343 5344 5345 5346 5347 5348 5349 5349 5350 5351 5352 5353 5354 5355 5356 5357 5358 5359 5359 5360 5361 5362 5363 5364 5365 5366 5367 5368 5369 5369 5370 5371 5372 5373 5374 5375 5376 5377 5378 5379 5379 5380 5381 5382 5383 5384 5385 5386 5387 5388 5389 5389 5390 5391 5392 5393 5394 5395 5396 5397 5398 5399 5399 5400 5401 5402 5403 5404 5405 5406 5407 5408 5409 5409 5410 5411 5412 5413 5414 5415 5416 5417 5418 5419 5419 5420 5421 5422 5423 5424 5425 5426 5427 5428 5429 5429 5430 5431 5432 5433 5434 5435 5436 5437 5438 5439 5439 5440 5441 5442 5443 5444 5445 5446 5447 5448 5449 5449 5450 5451 5452 5453 5454 5455 5456 5457 5458 5459 5459 5460 5461 5462 5463 5464 5465 5466 5467 5468 5469 5469 5470 5471 5472 5473 5474 5475 5476 5477 5478 5479 5479 5480 5481 5482 5483 5484 5485 5486 5487 5488 5489 5489 5490 5491 5492 5493 5494 5495 5496 5497 5498 5499 5499 5500 5501 5502 5503 5504 5505 5506 5507 5508 5509 5509 5510 5511 5512 5513 5514 5515 5516 5517 5518 5519 5519 5520 5521 5522 5523 5524 5525 5526 5527 5528 5529 5529 5530 5531 5532 5533 5534 5535 5536 5537 5538 5539 5539 5540 5541 5542 5543 5544 5545 5546 5547 5548 5549 5549 5550 5551 5552 5553 5554 5555 5556 5557 5558 5559 5559 5560 5561 5562 5563 5564 5565 5566 5567 5568 5569 5569 5570 5571 5572 5573 5574 5575 5576 5577 5578 5579 5579 5580 5581 5582 5583 5584 5585 5586 5587 5588 5589 5589 5590 5591 5592 5593 5594 5595 5596 5597 5598 5599 5599 5600 5601 5602 5603 5604 5605 5606 5607 5608 5609 5609 5610 5611 5612 5613 5614 5615 5616 5617 5618 5619 5619 5620 5621 5622 5623 5624 5625 5626 5627 5628 5629 5629 5630 5631 5632 5633 5634 5635 5636 5637 5638 5639 5639 5640 5641 5642 5643 5644 5645 5646 5647 5648 5649 5649 5650 5651 5652 5653 5654 5655 5656 5657 5658 5659 5659 5660 5661 5662 5663 5664 5665 5666 5667 5668 5669 5669 5670 5671 5672 5673 5674 5675 5676 5677 5678 5679 5679 5680 5681 5682 5683 5684 5685 5686 5687 5688 5689 5689 5690 5691 5692 5693 5694 5695 5696 5697 5698 5699 5699 5700 5701 5702 5703 5704 5705 5706 5707 5708 5709 5709 5710 5711 5712 5713 5714 5715 5716 5717 5718 5719 5719 5720 5721 5722 5723 5724 5725 5726 5727 5728 5729 5729 5730 5731 5732 5733 5734 5735 5736 5737 5738 5739 5739 5740 5741 5742 5743 5744 5745 5746 5747 5748 5749 5749 5750 5751 5752 5753 5754 5755 5756 5757 5758 5759 5759 5760 5761 5762 5763 5764 5765 5766 5767 5768 5769 5769 5770 5771 5772 5773 5774 5775 5776 5777 5778 5779 5779 5780 5781 5782 5783 5784 5785 5786 5787 5788 5789 5789 5790 5791 5792 5793 5794 5795 5796 5797 5798 5799 5799 5800 5801 5802 5803 5804 5805 5806 5807 5808 5809 5809 5810 5811 5812 5813 5814 5815 5816 5817 5818 5819 5819 5820 5821 5822 5823 5824 5825 5826 5827 5828 5829 5829 5830 5831 5832 5833 5834 5835 5836 5837 5838 5839 5839 5840 5841 5842 5843 5844 5845 5846 5847 5848 5849 5849 5850 5851 5852 5853 5854 5855 5856 5857 5858 5859 5859 5860 5861 5862 5863 5864 5865 5866 5867 5868 5869 5869 5870 5871 5872 5873 5874 5875 5876 5877 5878 5879 5879 5880 5881 5882 5883 5884 5885 5886 5887 5888 5889 5889 5890 5891 5892 5893 5894 5895 5896 5897 5898 5899 5899 5900 5901 5902 5903 5904 5905 5906 5907 5908 5909 5909 5910 5911 5912 5913 5914 5915 5916 5917 5918 5919 5919 5920 5921 5922 5923 5924 5925 5926 5927 5928 5929 5929 5930 5931 5932 5933 5934 5935 5936 5937 5938 5939 5939 5940 5941 5942 5943 5944 5945 5946 5947 5948 5949 5949 5950 5951 5952 5953 5954 5955 5956 5957 5958 5959 5959 5960 5961 5962 5963 5964 5965 5966 5967 5968 5969 5969 5970 5971 5972 5973 5974 5975 5976 5977 5978 5979 5979 5980 5981 5982 5983 5984 5985 5986 5987 5988 5989 5989 5990 5991 5992 5993 5994 5995 5996 5997 5998 5999 5999 6000 6001 6002 6003 6004 6005 6006 6007 6008 6009 6009 6010 6011 6012 6013 6014 6015 6016 6017 6018 6019 6019 6020 6021 6022 6023 6024 6025 6026 6027 6028 6029 6029 6030 6031 6032 6033 6034 6035 6036 6037 6038 6039 6039 6040 6041 6042 6043 6044 6045 6046 6047 6048 6049 6049 6050 6051 6052 6053 6054 6055 6056 6057 6058 6059 6059 6060 6061 6062 6063 6064 6065 6066 6067 6068 6069 6069 6070 6071 6072 6073 6074 6075 6076 6077 6078 6079 6079 6080 6081 6082 6083 6084 6085 6086 6087 6088 6089 6089 6090 6091 6092 6093 6094 6095 6096 6097 6098 6099 6099 6100 6101 6102 6103 6104 6105 6106 6107 6108 6109 6109 6110 6111 6112 6113 6114 6115 6116 6117 6118 6119 6119 6120 6121 6122 6123 6124 6125 6126 6127 6128 6129 6129 6130 6131 6132 6133 6134 6135 6136 6137 6138 6139 6139 6140 6141 6142 6143 6144 6145 6146 6147 6148 6149 6149 6150 6151 6152 6153 6154 6155 6156 6157 6158 6159 6159 6160 6161 6162 6163 6164 6165 6166 6167 6168 6169 6169 6170 6171 6172 6173 6174 6175 6176 6177 6178 6179 6179 6180 6181 6182 6183 6184 6185 6186 6187 6188 6189 6189 6190 6191 6192 6193 6194 6195 6196 6197 6198 6199 6199 6200 6201 6202 6203 6204 6205 6206 6207 6208 6209 6209 6210 6211 6212 6213 6214 6215 6216 6217 6218 6219 6219 6220 6221 6222 6223 6224 6225 6226 6227 6228 6229 6229 6230 6231 6232 6233 6234 6235 6236 6237 6238 6239 6239 6240 6241 6242 6243 6244 6245 6246 6247 6248 6249 6249 6250 6251 6252 6253 6254 6255 6256 6257 6258 6259 6259 6260 6261 6262 6263 6264 6265 6266 6267 6268 6269 6269 6270 6271 6272 6273 6274 6275 6276 6277 6278 6279 6279 6280 6281 6282 6283 6284 6285 6286 6287 6288 6289 6289 6290 6291 6292 6293 6294 6295
```

permanent stations - properties of interest:

sensor corner period	< 30s
	=> 30 s and < 40 s (effectively = 30 s)
	=> 40 s and < 60 s (effectively = 40 s)
	=> 60 s

binary properties:

EIDA	yes / no
online	yes / no
StationBook	yes / no
FDSN	yes / no
inside the region	yes / no (to flexibly change the AdriaArray outline)
for upgrade	yes / no (if corner <= 30 s)

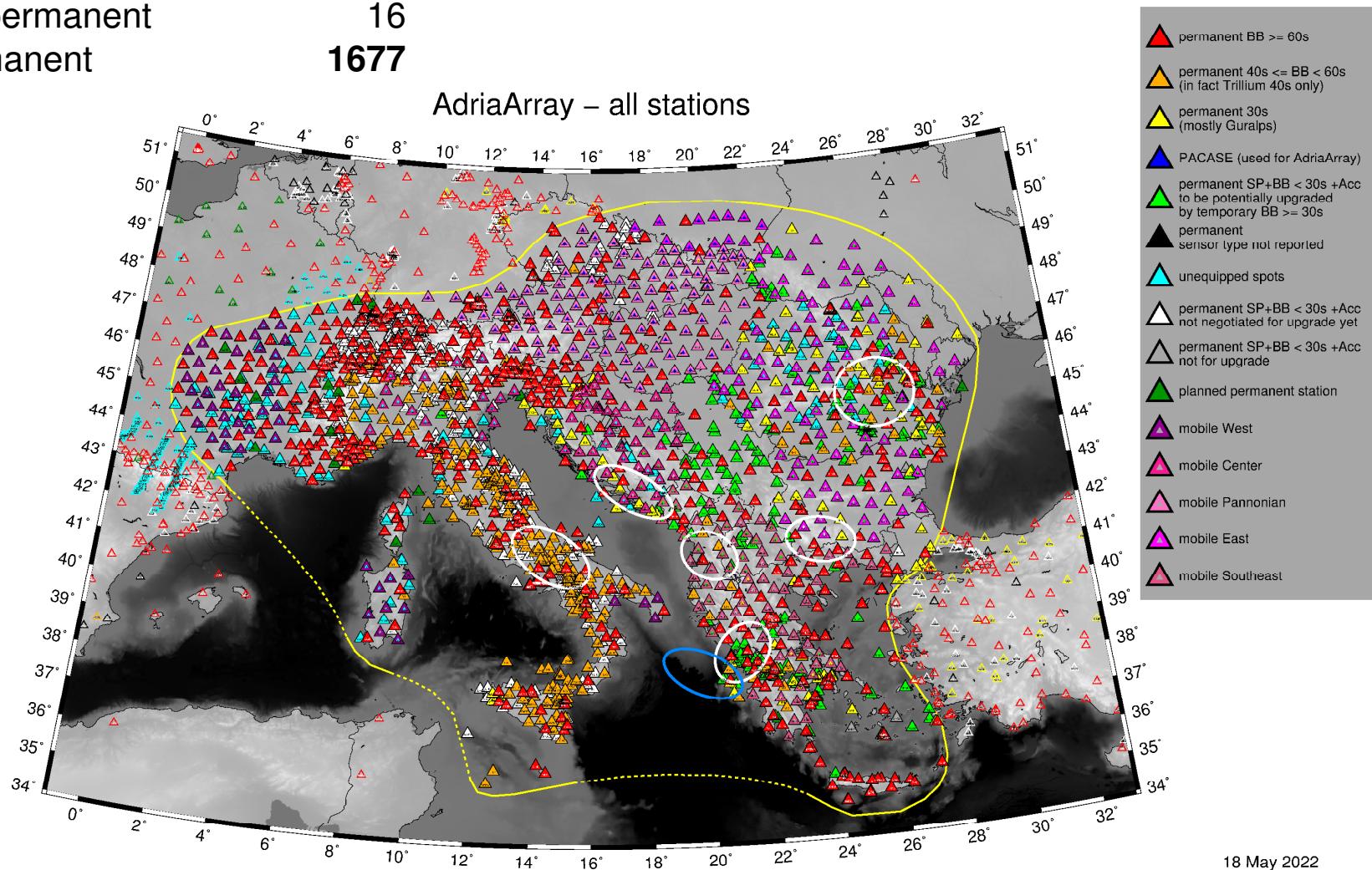
idea: whenever you change or add a line (station properties) in the inventory,
- you run the Python script
- and you get an updated map by the GMT script

Adria Array – all permanent stations - update May 2022

inside AdriaArray region:

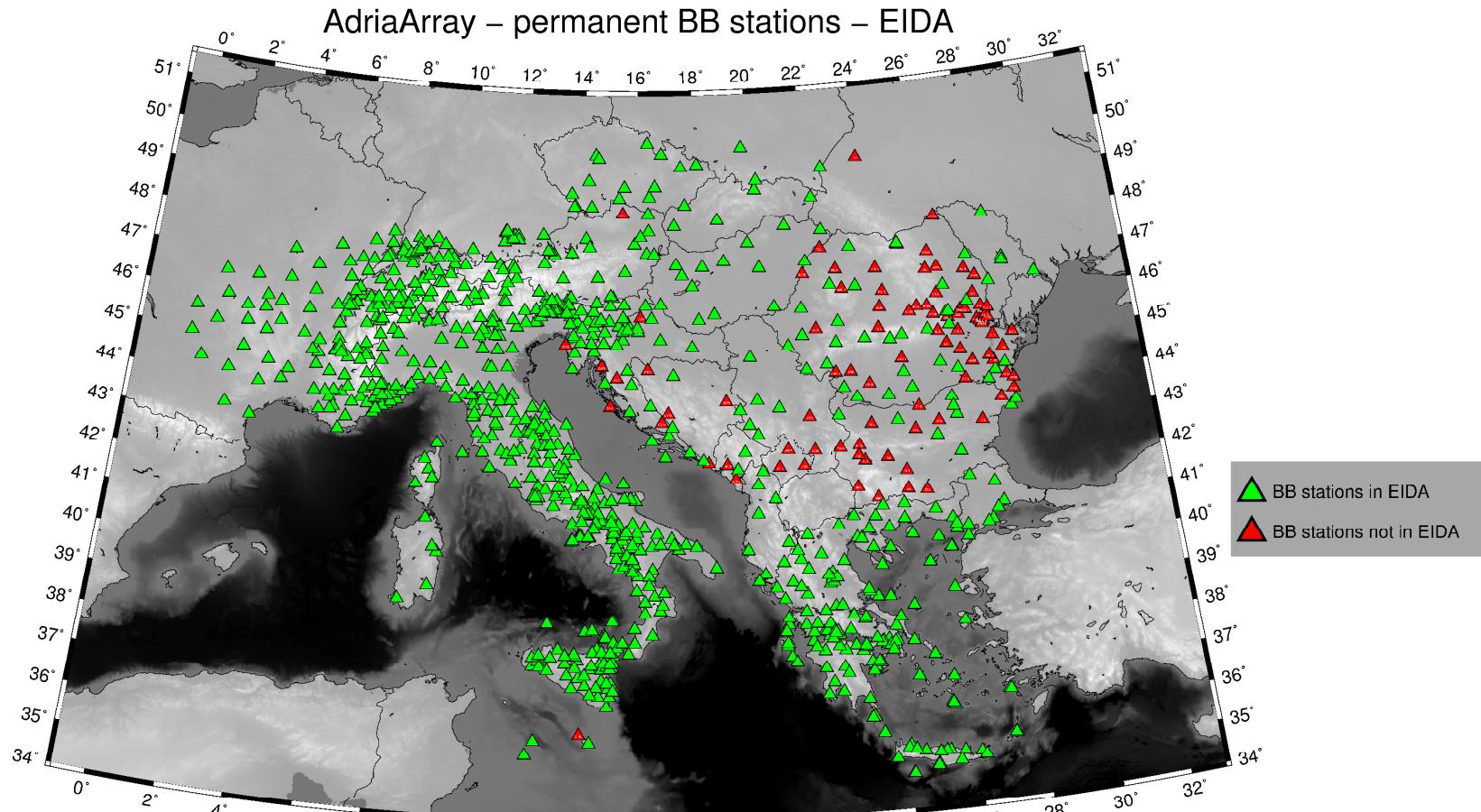
BB (>= 30s)	967
SP+SM for upgrade	259
SP+SM others	450
unknown	1
planned permanent	16
total permanent	1677

(there are 2300+ stations on the map
including those outside the AdriaArray region)



from that **1677** permanent stations, **1384** are already in EIDA (82.5%)
=> 293 are not in EIDA (BB+SP+SM)
out of these 293,
89 BB permanent stations need to be connected to EIDA

HOMEWORK: if there is a new non-EIDA permanent station built since we communicated the last time (2019/2020/2021/2022), please, share the information with me, as I cannot find that station otherwise and connect it to EIDA!



AdriaArray

Seismic Network

Working Group

(May, 2022)

50 participating institutions from **27** countries

(alphabetical order by countries)

seismic network preparatory steps:

- 1 permanent stations in the region
- 2 availability of the mobile stations
- 3 distribution of mobile stations

- 4 iterate 1 – 3 to update

2019 – 2020 – 2021 – 2022 ...

IGEWE-PUT, Tirana, Albania
Uni Vienna, Austria
ZAMG, Austria
SC FHMZ, Sarajevo, Bosnia and Herzegovina
GS Republic of Srpska, Bosnia and Herzegovina
BAS, Bulgaria
CSS, Zagreb, Croatia
Uni Zagreb, Croatia
Charles Uni, Prague, Czech Republic
IG, CAS, Prague, Czech Republic
IPE, Masaryk Uni, Brno, Czech Rep.
IRSM, CAS, Prague, Czech Republic
Uni Aarhus, Denmark
Uni Helsinki, Finland
Uni Oulu, Finland
Uni Grenoble, France
Observatoire Midi Pyrénées, France
Uni Bochum, Germany
GEOMAR Kiel, Germany
GFZ Potsdam, Germany
Uni Kiel, Germany
Uni Karlsruhe, Germany
Uni Münster, Germany
Uni München, Germany
Uni Frankfurt, Germany
NOA, Greece/ORFEUS
Uni Thessaloniki, Greece
Uni Patras, Greece
HAS, Budapest, Hungary
EPSS, Hungary
INGV, Italy
OGS, Trieste, Italy
GS Kosovo, Pristina, Kosovo
Uni Sts. Cyril and Methodius, Skopje, N. Macedonia
Uni Malta
IGS-CES, Chisinau, Moldova
MSS, Podgorica, Montenegro
Uni Twente, The Netherlands
Norwegian Broadband Pool, Norway
IG PAS, Warsaw, Poland
Uni Silesia, Katowice, Poland
Uni Warszawa, Poland
NIEP, Romania
ESI SAV, Bratislava, Slovakia
SSS, Ljubljana, Slovenia
ICTJA-CSIC, Barcelona, Spain
ETH, Zürich, Switzerland
IoG, NAS, Ukraine
ORFEUS

mobile stations available

Uni Vienna, Austria	30
Croatian Seismological Survey	19
IG, Czech Republic	50
IRSM, Czech Republic	4 + local experiment
Uni Aarhus, Denmark	19 + local experiment
Uni Helsinki, Finland	20
Uni Oulu, Finland	10
Resif-Sismob, France	35
Germany DSEBRA+	114 + local on-shore/off-shore experim.
Hungary	15
OGS, Italy	6
INGV, Italy	local experiment
INGV, Italy, Bologna	1
Uni Twente, the Netherlands	7+
Norwegian Broadband Pool+UniZagreb	12+
IG+Warszawa+Silesia, Poland	29
Barcelona, Spain	10
ETH, Switzerland	20
total available	401+ mobile stations

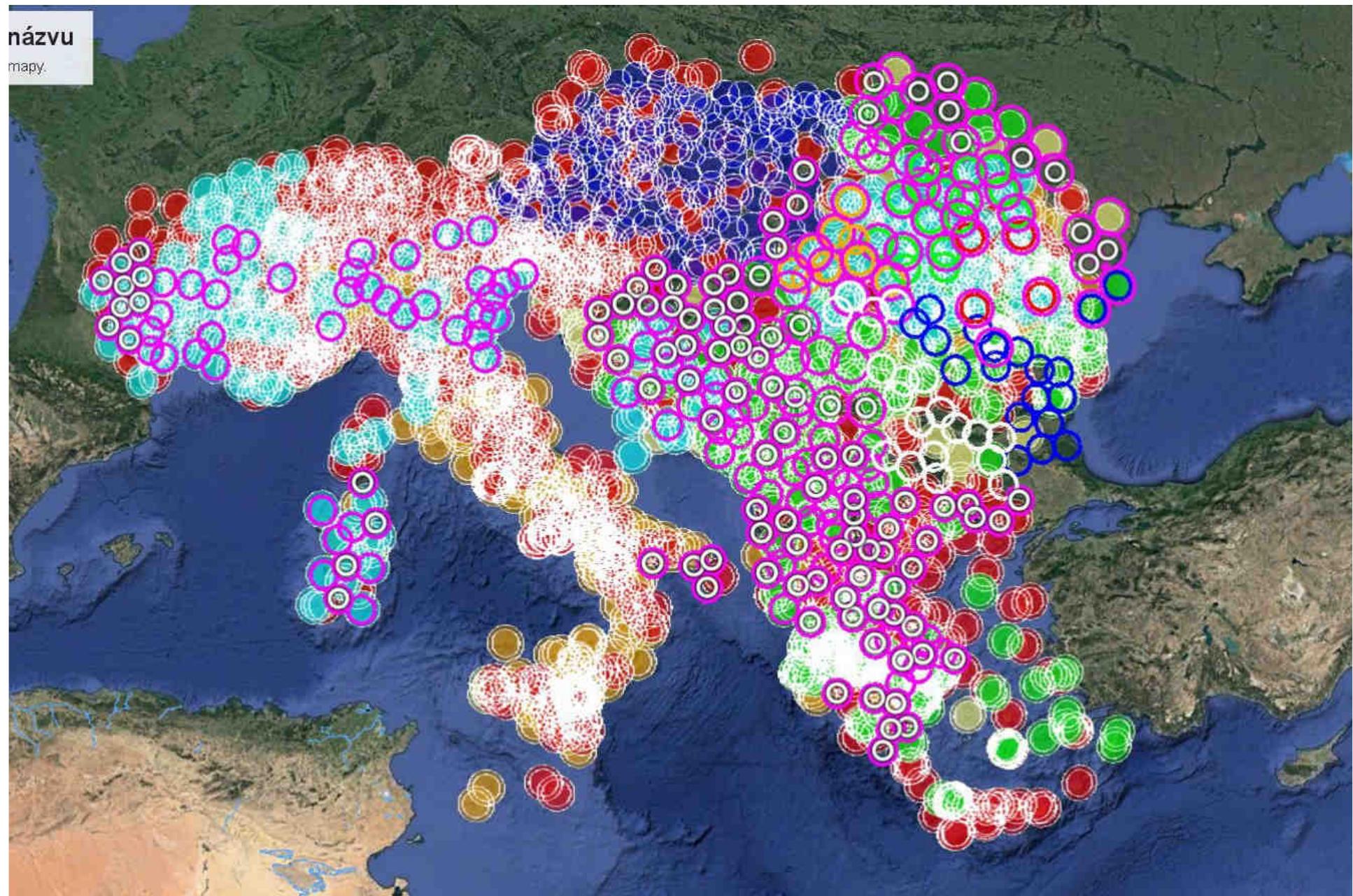
	MOBILES	REGION	PACASE already in place						120		
EAST		Poland	Ukr.-Carp.	Ukr.-Coast	Moldavia	Romania	Bulgaria		sum columns	available	spare
	IG CzechRep					8	10		18	18	0
IRSM Czech Rep						4			4	4	0
Denmark						4	15		19	19	0
Helsinki						16			16	20	4
???					3				3	0	-3
Oulu						9			9	10	1
???				2					2	0	-2
Poland	13	14							27	29	2
									98	100	2
sum of rows	13	14	2	3	41	25	98 sums		available		spare
needed	13	14	2	3	41	25	98 needed				
30s NOT replaced											
PANNONIAN	CzechRep	Austria	Slovakia	Hungary	Serbia	Germany		sum columns	available	spare	
UniWien		17	9					26	30	4	
IG CzechRep	11		21					32	32	0	
Hungary PACASE				11				11	11	0	
Hungary new				4				4	4	0	
Kiel		15	15		8			38	40	2	
								111	117	6	
sum of rows	11	32	30	30	0	8	111 sums		available		spare
needed	11	32	30	30	0	8	111 needed				
CENTRE	Croatia	BiH	N. Italy	Slovenia				sum columns	available	spare	
NorwPool+Zag	10							10	12	2	
CroSeismSurvey	19							19	19	0	
ETH		20						20	20	0	
OGS			6					6	6	0	
INGV Bologna			1					1	1	0	
the Netherlands			9					9	7	-2	
								65	65	0	
sum of rows	29	20	16	0			65 sums		available		spare
needed	29	20	16	0			65 needed				
SOUTHEAST	Albania	N. Macedon	Montenegro	Kosovo	Greece			sum columns	available	spare	
Bochum		13			40			53	54	1	
Munich	10		7	3				20	20	0	
								73	74	1	
sum of rows	10	13	7	3	40		73 sums		available		spare
needed	10	13	7	3	40		73 needed				
WEST	Apulia	Sicily	Sardinia	Massif Cent.	Switzerland			sum columns	available	spare	
Spain	4		9					13	10	-3	
France				35				35	35	0	
								48	45	-3	
sum of rows	4	0	9	35	0		48 sums		available		spare
needed	4	0	9	35	0		48 needed				
							total needed	395	total available	401	
									total spare	6	

numbers:

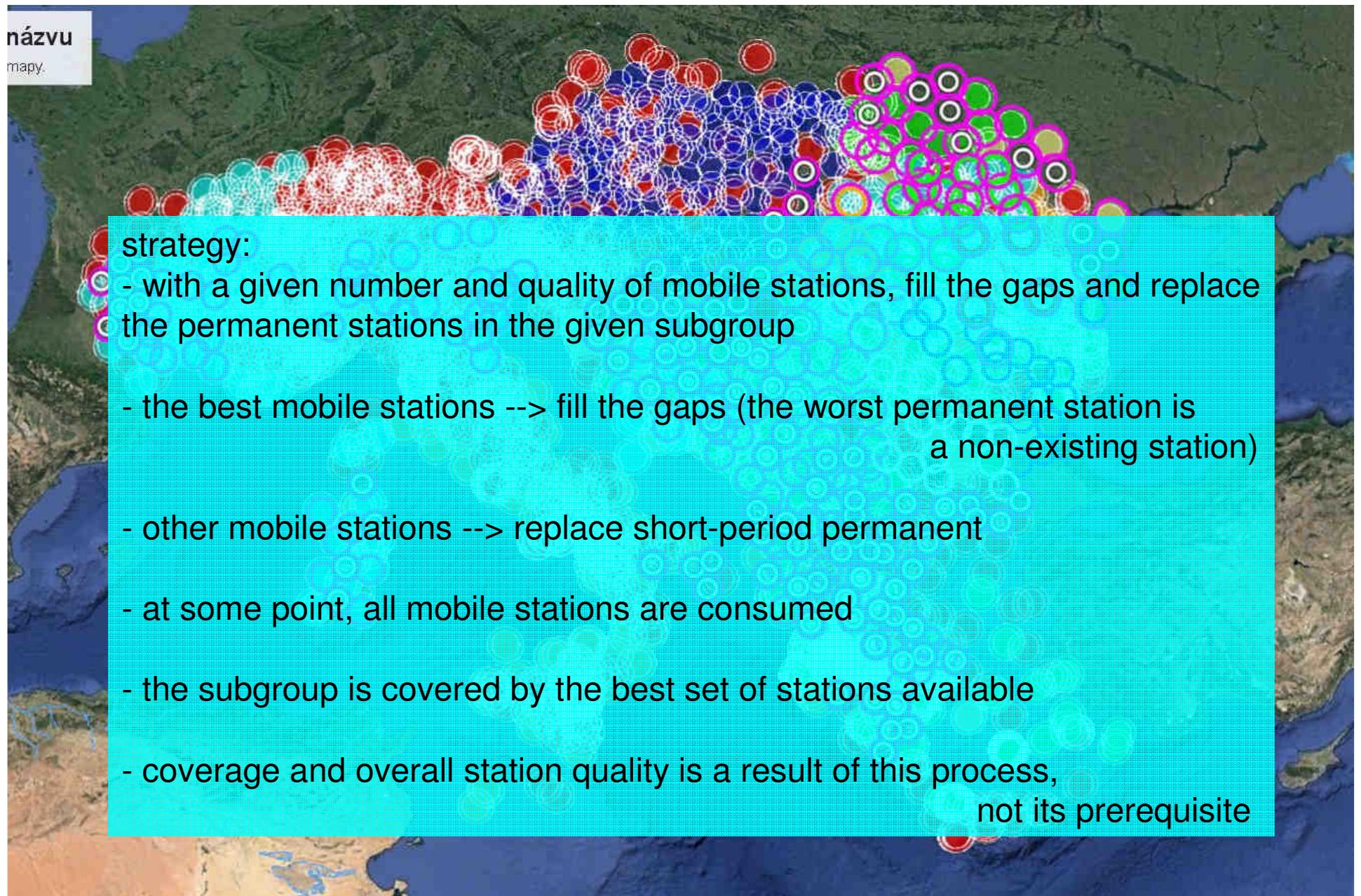
we need **395** temporary stations

however, **120** out of these 395 ARE ALREADY deployed as the PACASE project
meaning, “only” **275** stations to go!

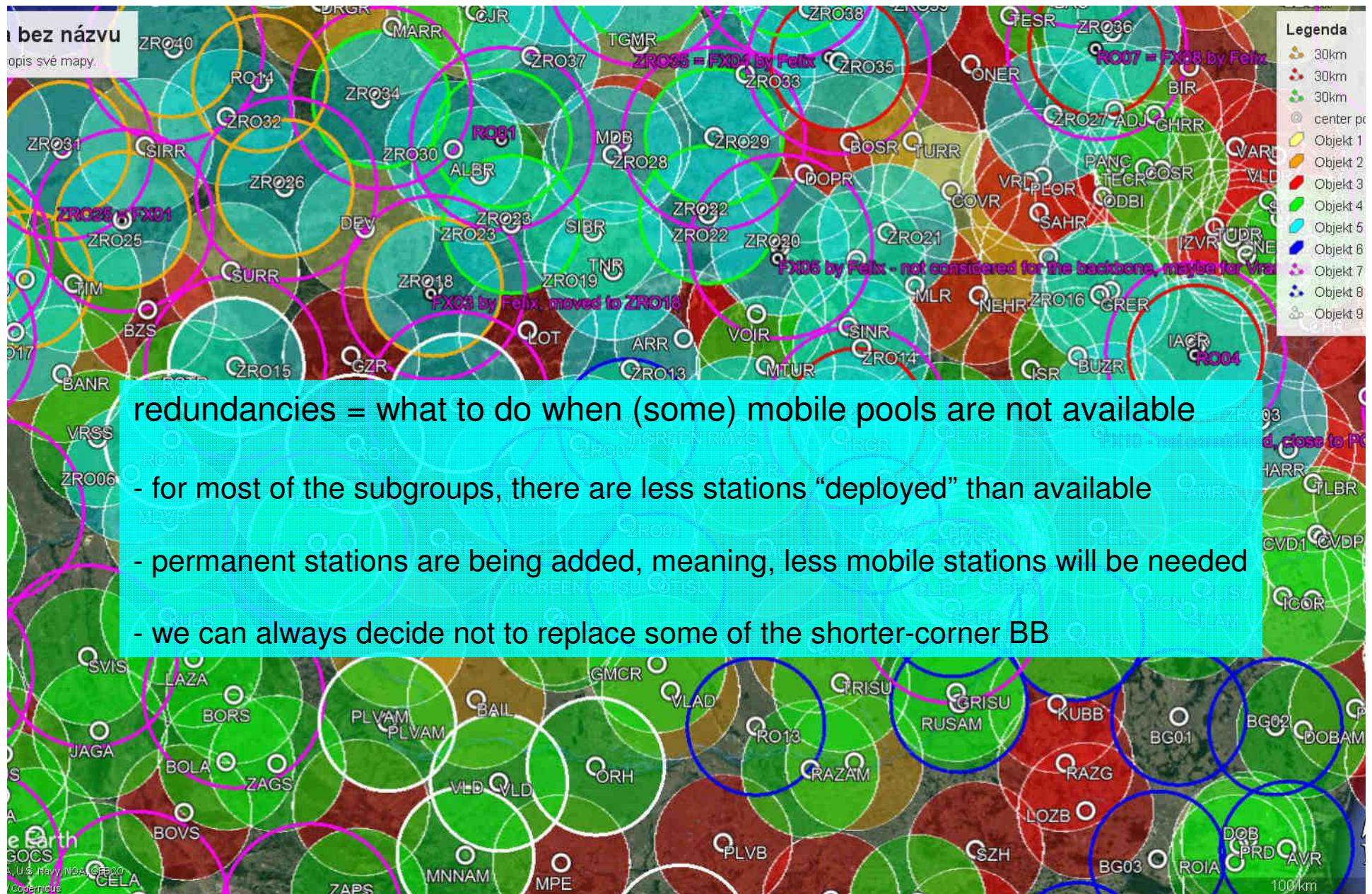
deployment of mobile stations – handmade in GoogleEarth



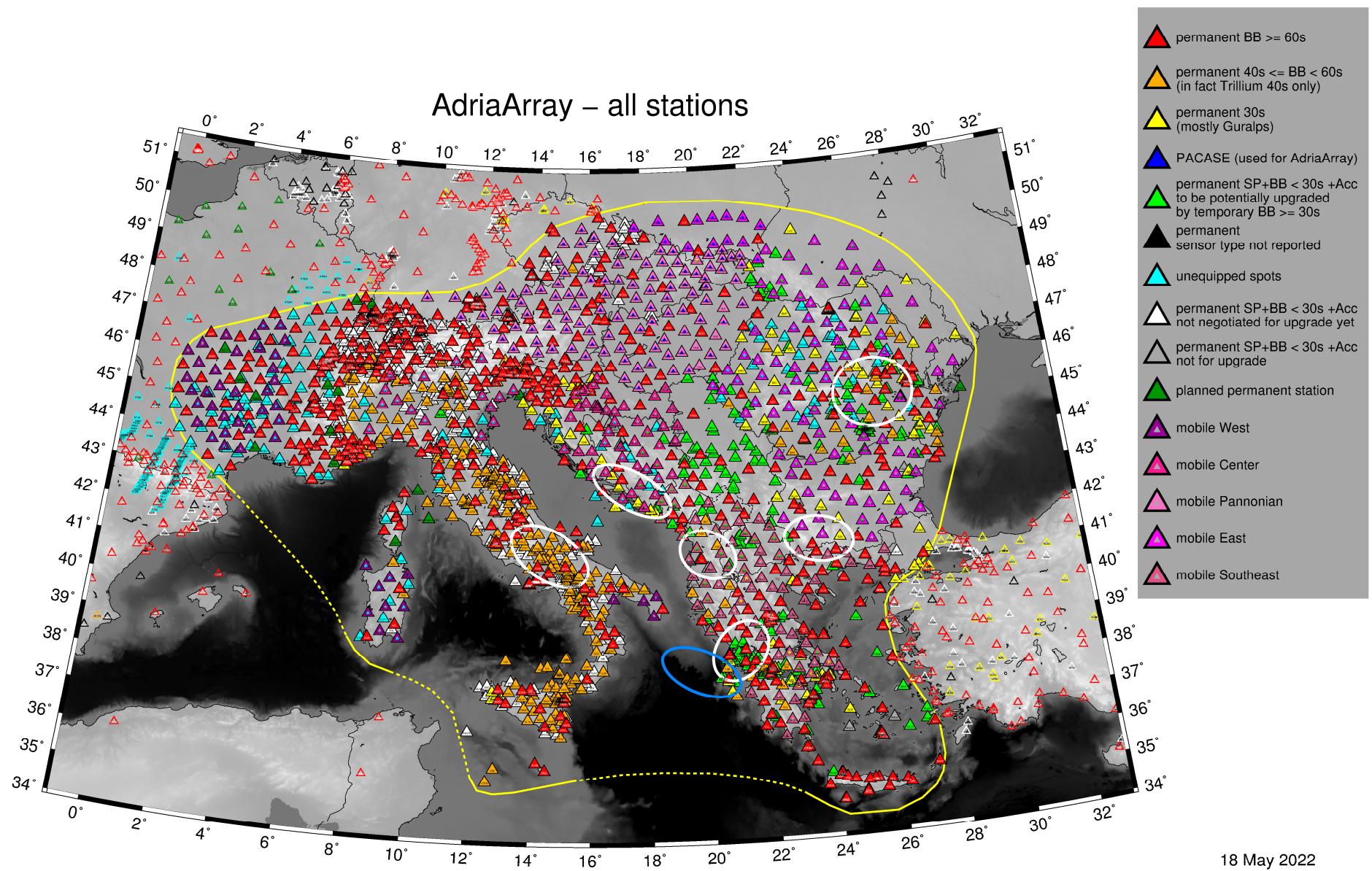
deployment of mobile stations – handmade in GoogleEarth



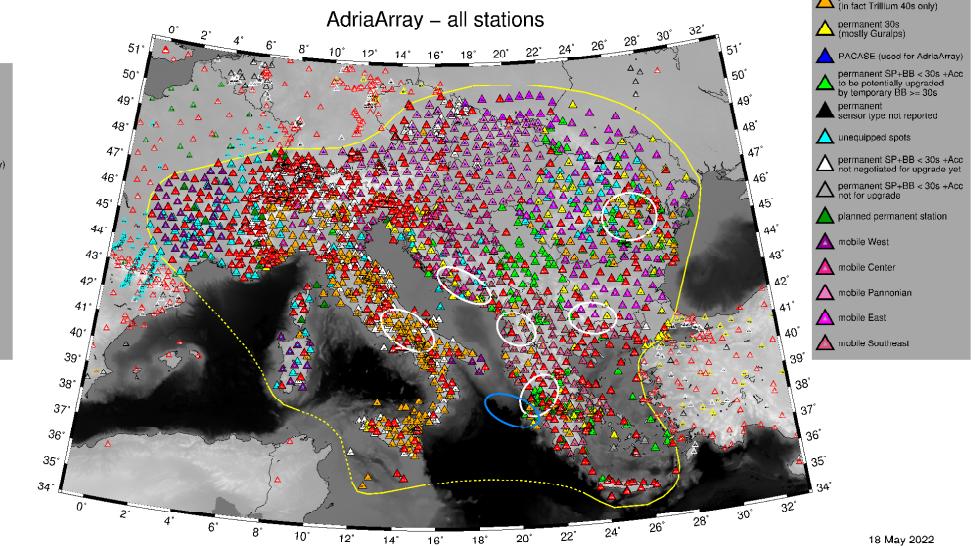
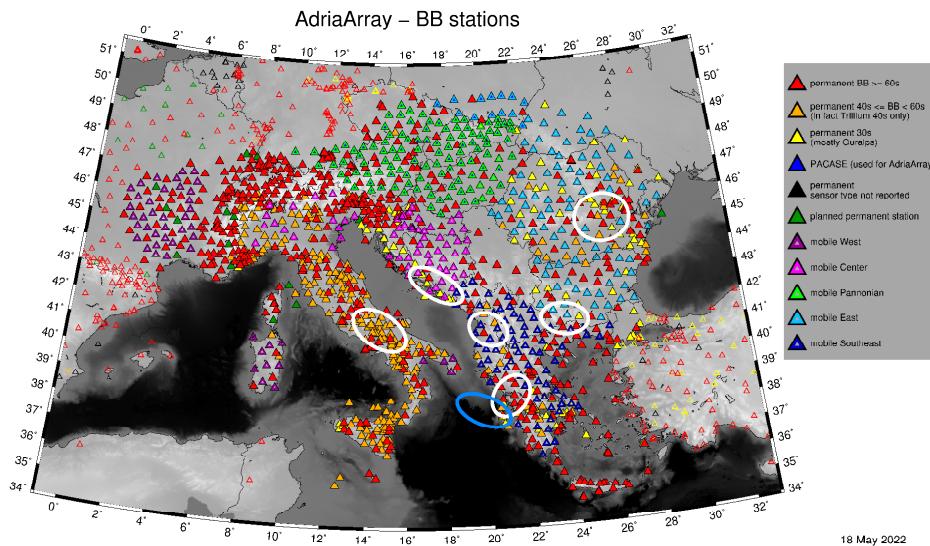
deployment of mobile stations – handmade in GoogleEarth



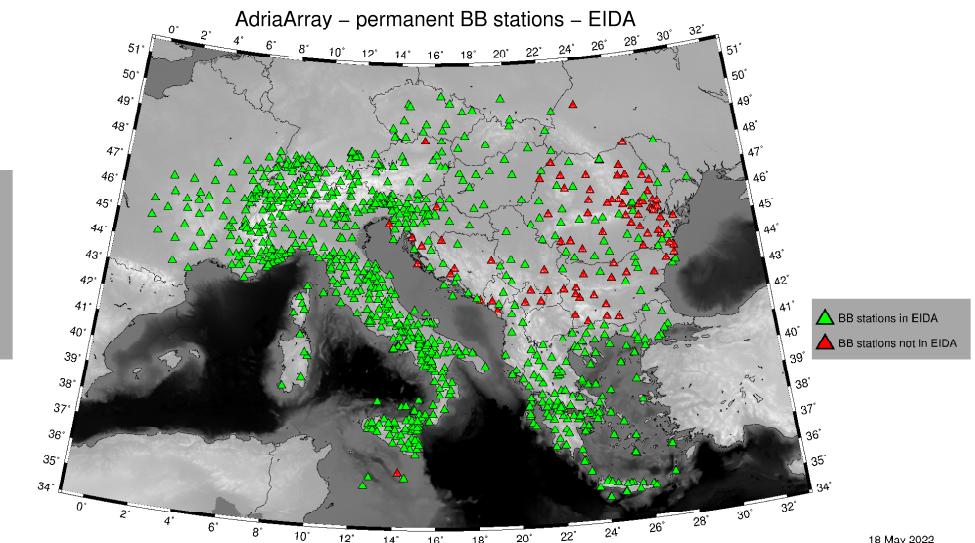
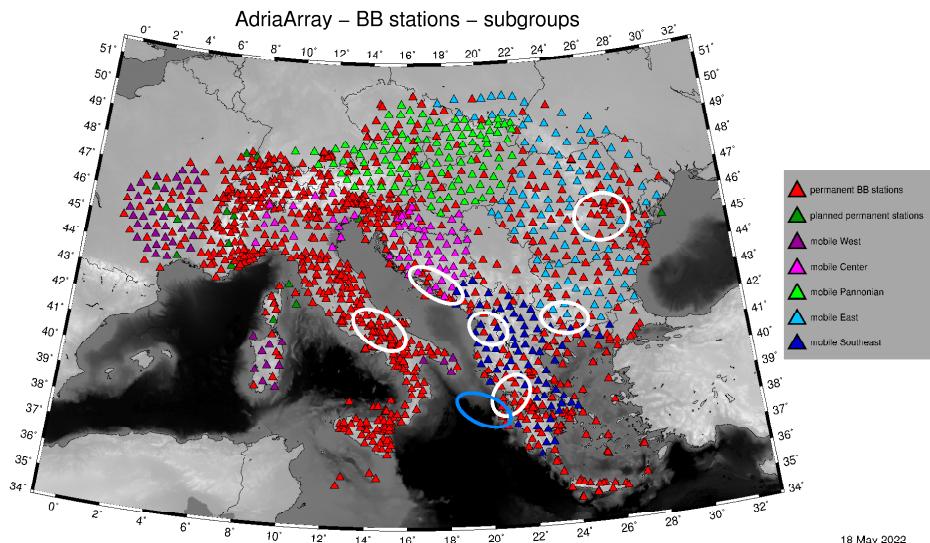
Adria Array – all permanent stations + mobile stations



18 May 2022



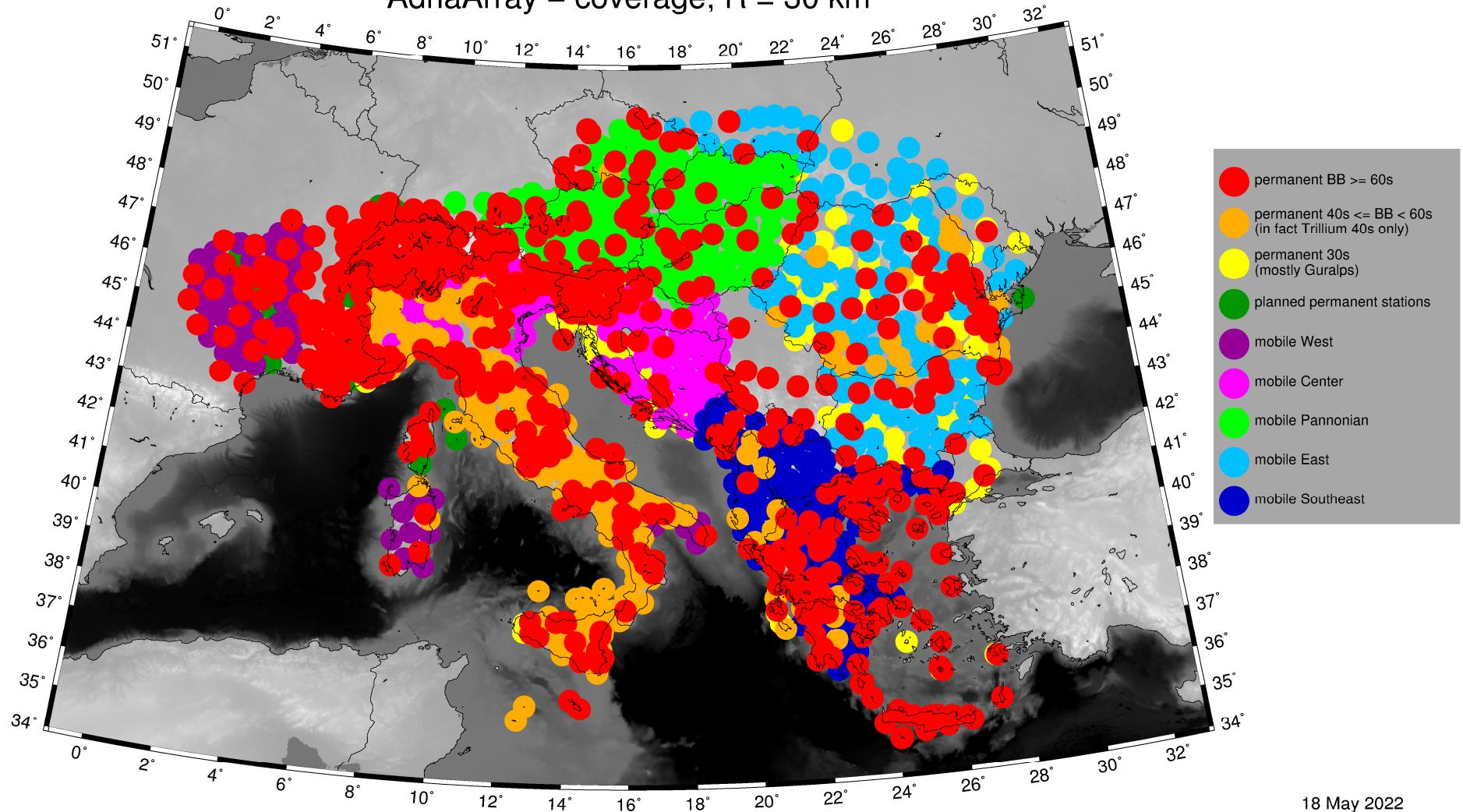
various versions of the map – different levels of information plotted



coverage

30 km

AdriaArray – coverage, $R = 30$ km

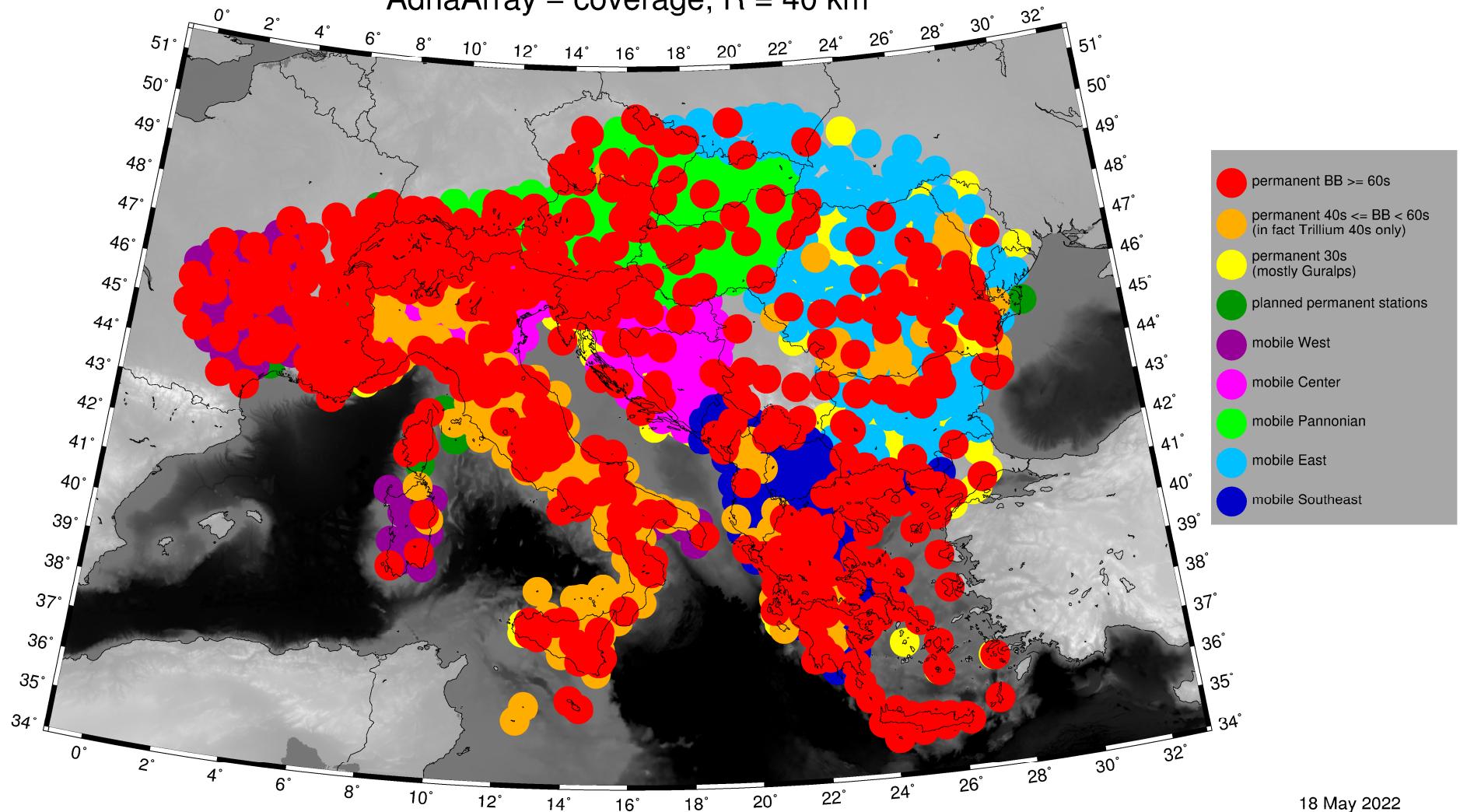


18 May 2022

coverage

40 km

AdriaArray – coverage, $R = 40$ km



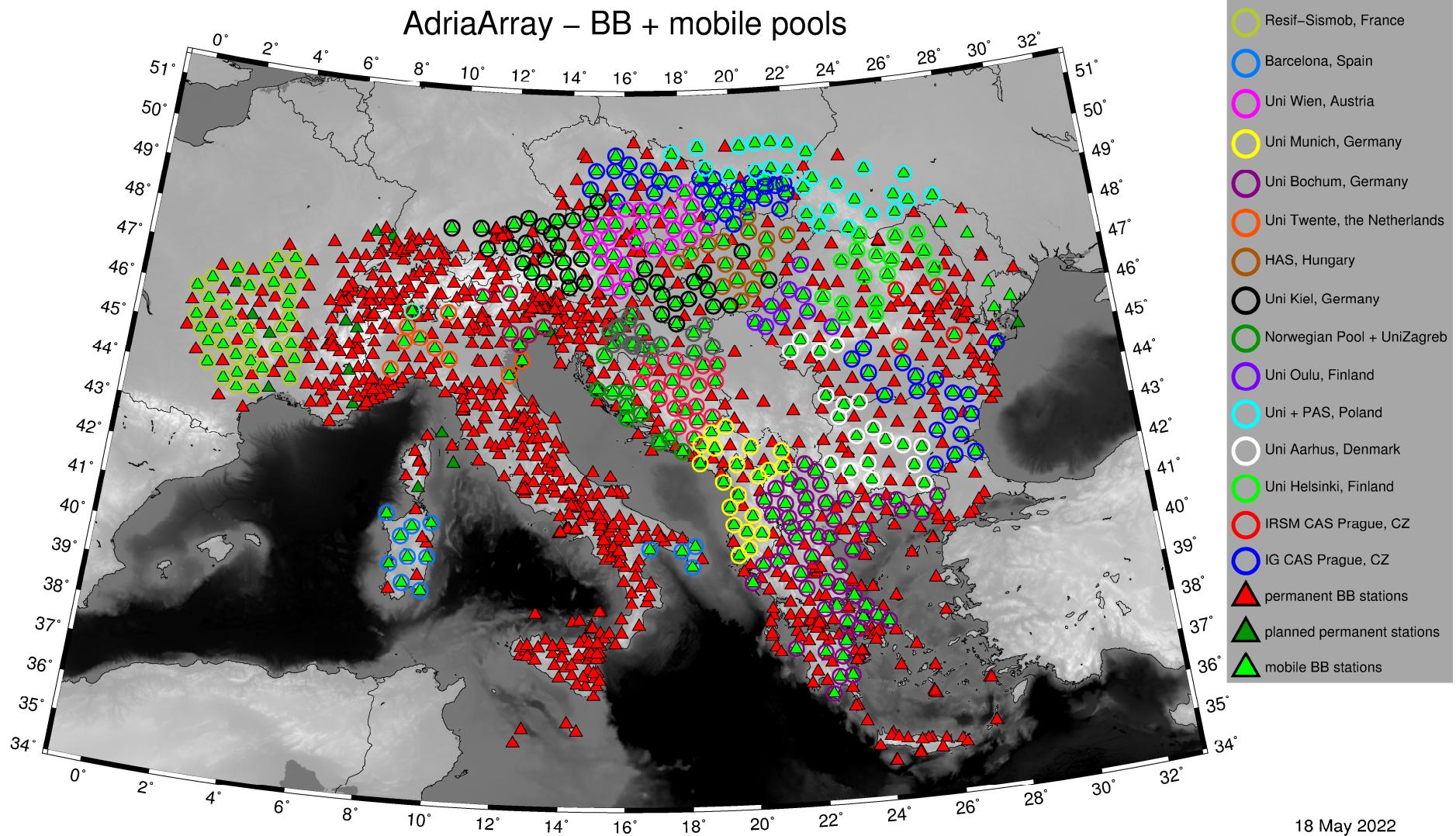
18 May 2022

mobile pools assigned to the stations

395 BB mobile stations

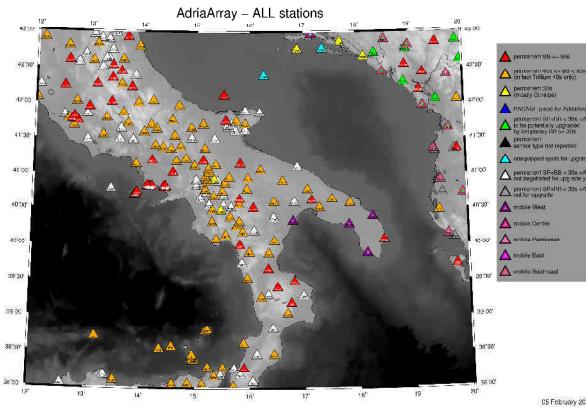
967 BB permanent stations

--> **1362 BB stations in total**

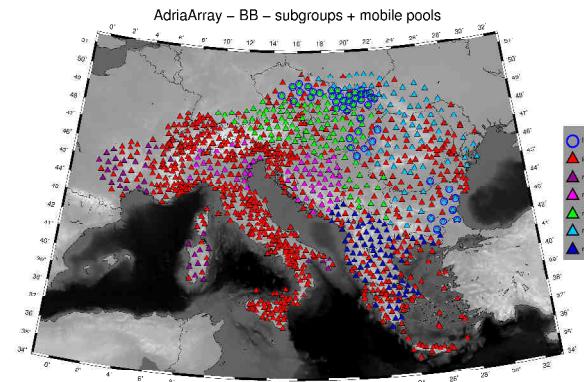


18 May 2022

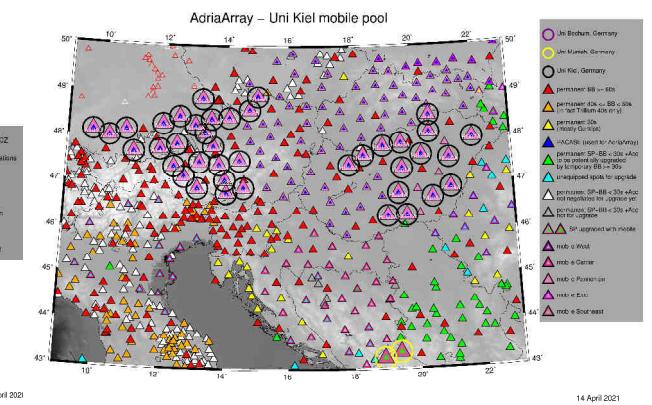
examples of maps to support project proposals



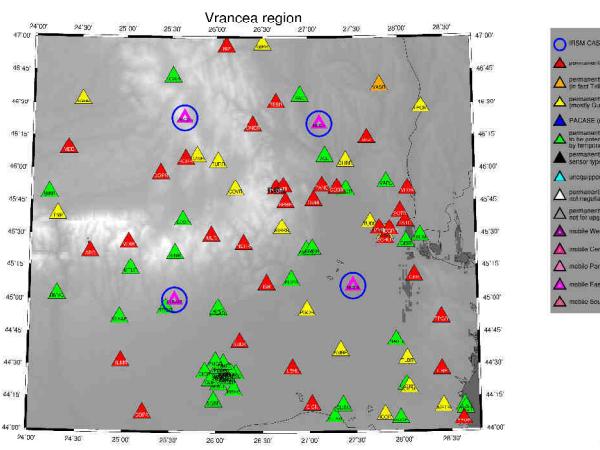
INGV



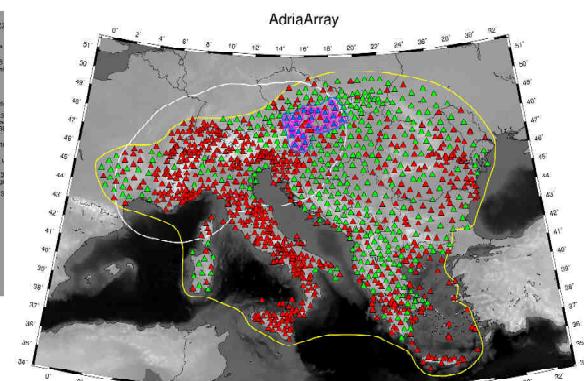
IG CAS CZ



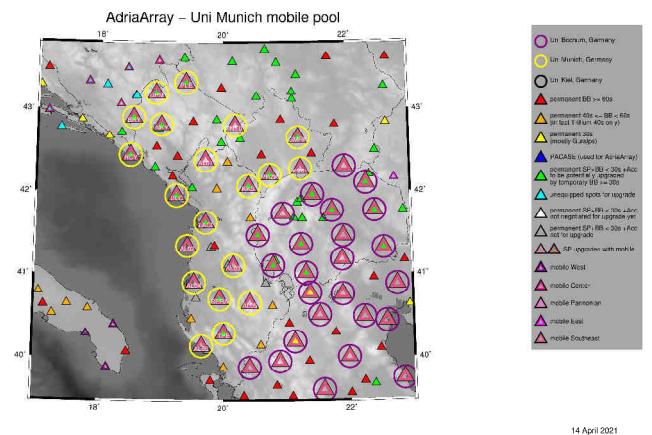
Uni Kiel



IRSM CAS CZ



Uni Wien



Uni Munich

current task: table of contacts

ready for the subregion “East”, under construction for the other parts

Temporary networks – subregion „East“

mobile pool	country	contact person	host institution	host country	contact person	stations	network code	EIDA node	begin of deployment	end of deployment	state of funding
IG CAS	CZ	Petr Kolínský	NIEP	RO	Felix Borleanu	8	Prague/NIEP	April/May 2022	April 2024	funded	
		Petr Kolínský	NIGGG BAS	BG	Lili Dimitrova	10					funded
IRSM CAS	CZ	Renata Lukešová	NIEP	RO	Felix Borleanu	4	NIEP	summer 2022	June/July 2022	+2 yrs	institutional funds
UniHelsinki	FIN	Timo Tiira	NIEP	RO	Cristian Neagoe	16					stations funded
???			NIEP / IGS	MD	Cristian Neagoe	3	NIEP	late summer/autumn 2022	planned July/August 2022	+2 yrs	???
UniOulu	FIN	Hanna Silvennoinen	NIEP	RO	Cristian Neagoe	9					funded
UniAarhus	DK	Thorsten Nagel	NIEP	RO	Cristian Neagoe	4	NIEP	planned July/August 2022	+2 yrs	pending	pending
		Thorsten Nagel	NIGGG BAS	BG	Lili Dimitrova	15					
IG PAS, UniWarsz, UniSilesia	PL	Wojciech Czuba Piotr Środa	IoG NAS	UA	Bohdan Kuplyovsky	14	Warsz/NIEP	June/July 2022	deployed	???	stations funded
		Wojciech Czuba Piotr Środa	IG PAS,UniWarsz,Uni Silesia	PL	Wojciech Czuba Piotr Środa	13					funded
???			IoG NAS	UA		2	NIEP				???
					total stations	98					

status:

- overview of permanent stations in the region is ready (and continuously updated)
- the mobile stations are existing and available
- the local network operators are willing to accept and support
 - the installation of the mobile stations
- the local networks and the mobile pool operators are willing to exchange data
 - within the AdriaArray Initiative
- some groups have got already some funding
- suggestion of mobile station distribution is ready (with some redundancy)

memorandum of collaboration (MoC):

- ready, will be discussed later today, and signed soon

plans:

- other groups are in the process of applying for funding this year (2022)
- the anticipated time for the installation of the mobile stations is 2 years within 2022-2024
- the plans have to be adjusted according to the pandemic, which looks better now
- I will share the maps and the slides with you

homeworks:

- if there is a **new non-EIDA permanent station** built, please, share the information
- please, let me know your **plans** about building a **new permanent stations** in the near future; longitude + latitude + BB/SP/SM is enough (some of you did, thanks!!!)
- comments (reporting errors and so on) **to the maps** are welcome

several mobile pools are to be deployed in near future

June: ETH --> Bosnia and Herzegovina

 IG Prague --> Romania + Bulgaria

July: Uni Helsinki --> Romania

 ... and others follow soon



ORFEUS + EPOS

support from Orfeus/EPOS is crucial for the AdriaArray

AdriaArray idea and Orfeus/EPOS are aiming
in the same direction, focusing on different aspects

infrastructure + science + networking

- archival of data at regional EIDA nodes
- support to AdA workshops via EPOS SP

Datacenter ID	Description and Focus Region
ODC - KNMI	European-Mediterranean, Netherlands
GFZ	European, Global, temporary deployments
RESIF	France + Global temporary deployments
INGV	Italy, European-Mediterranean (MedNet)
ETHZ	Switzerland
BGR	Germany
LMU	Germany (BayernNetz)
NIEP	Romania
KOERI	Turkey
NOA	Greece
UIB - NORSAR	Norway
ICGC	Spain

from the Orfeus web page:

ORFEUS

Observatories & Research Facilities for European Seismology

ORFEUS is the non-profit foundation to coordinate and promote digital, broadband seismology in the European-Mediterranean area.

EIDA is the European Integrated Data Archive infrastructure within ORFEUS to provide access to seismic waveform data in European archives.

- guidelines for quality control and data management being developed



acknowledgements

Maps plotted using GMT by Wessel, P., Smith, W. H. F., Scharroo, R., Luis, J. F. and Wobbe, F., 2013: Generic Mapping Tools: Improved version released, EOS Trans. AGU, 94, 409-410.

AlpArray stations by the AlpArray Working Group www.alparray.ethz.ch.

Permanent stations by national seismological services and ORFEUS-EIDA.

Big thanks to all the network operators for supplying the permanent station information.

PACASE station information thanks to György, Jarka and Antje.

Thanks to Orfeus + Epos for supporting AdriaArray.

petr.kolinsky@ig.cas.cz



INSTITUTE OF GEOPHYSICS
OF THE CZECH ACADEMY OF SCIENCES

Orfeus EPOS
EUROPEAN PLATE OBSERVING SYSTEM