

AdriaArray

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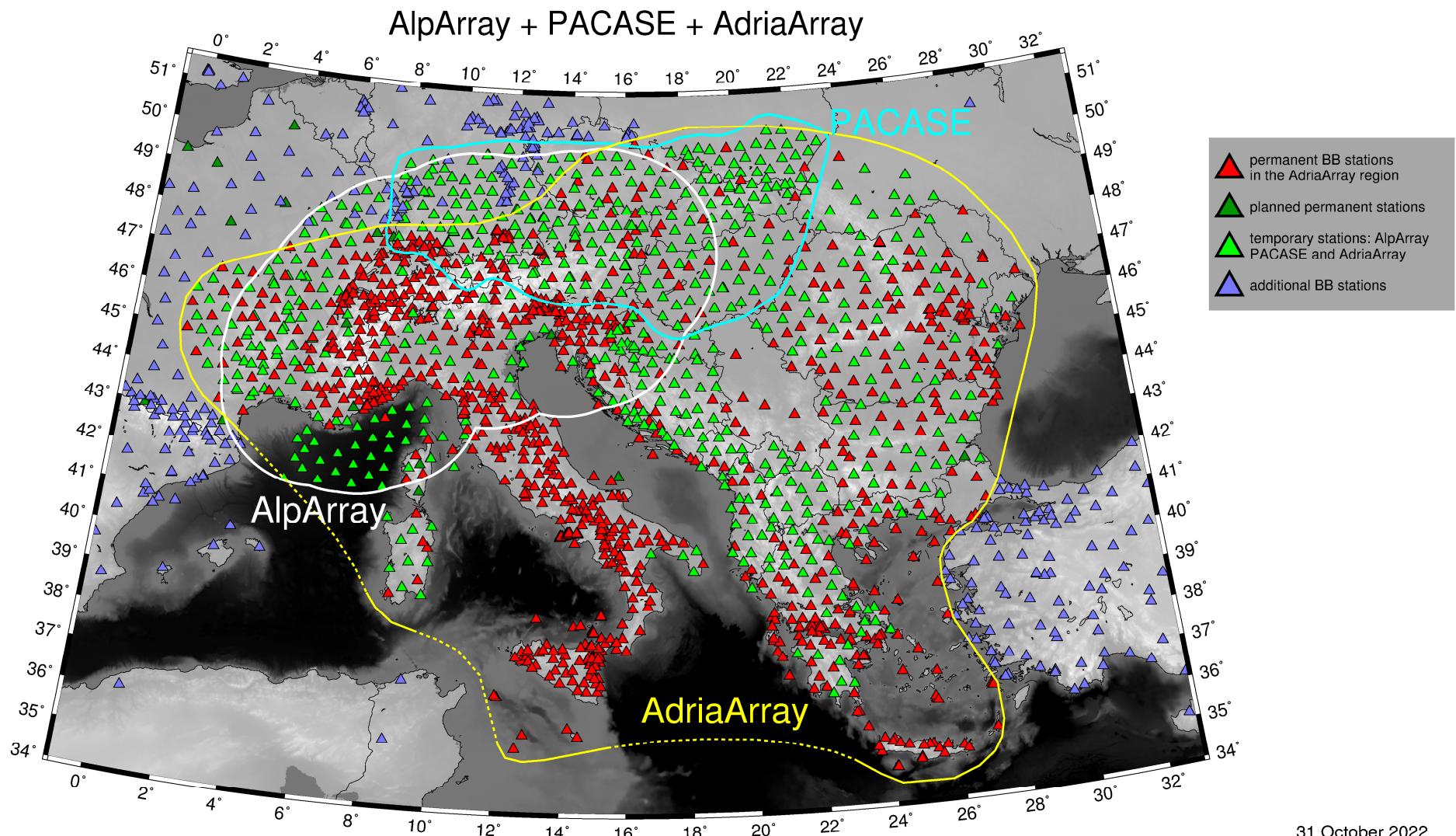
the AdriaArray Seismology Group

Banská Bystrica, November 3rd, 2022



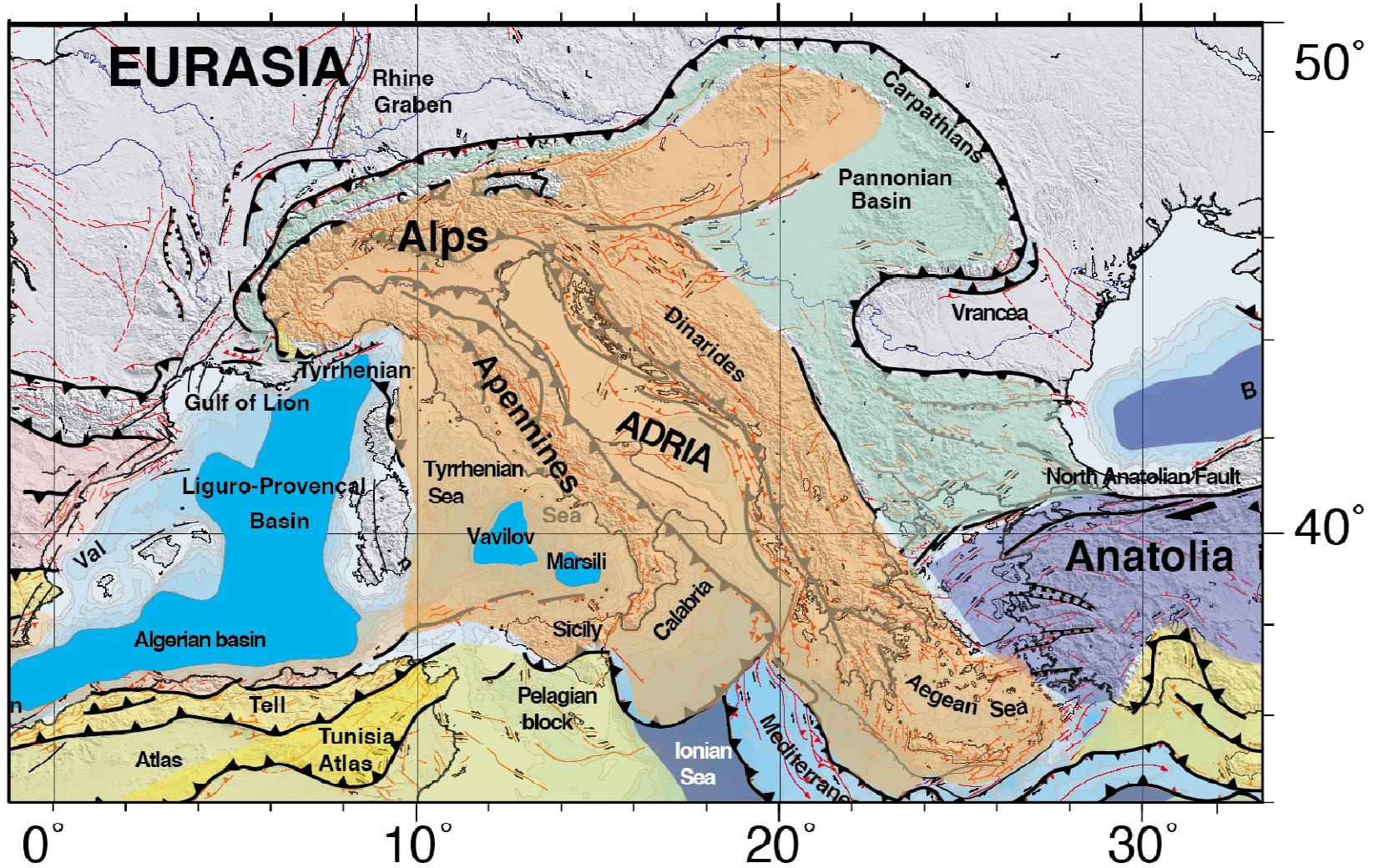
INSTITUTE OF GEOPHYSICS
OF THE CZECH ACADEMY OF SCIENCES





31 October 2022

Adriatic Plate is consumed by accretion and in a double subduction system

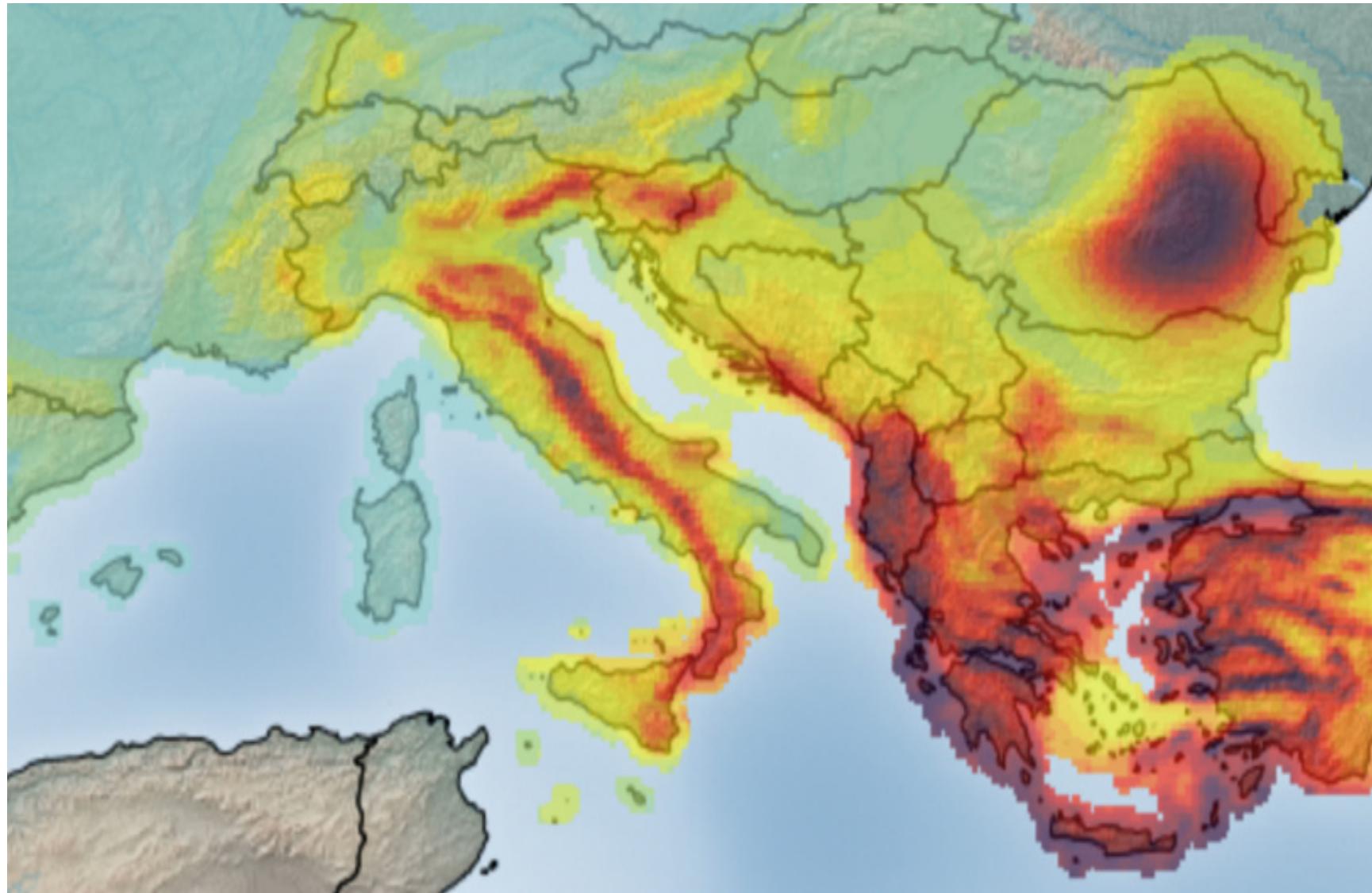


C. Faccenna

Geohazard:

> M7 Kefalonia (Greece) in 1953 and in Bar (Montenegro) in 1979

recent magnitude 6.4 earthquakes in Durrës (Albania, 2019) and Petrinja (Croatia, 2020)



<http://www.efehr.org/en/hazard-data-access/hazard-maps>

AdriaArray - history:

- preparation since 2018 (AlpArray Science Meeting Zurich)
 - workshop in Thessaloniki, May 2019, kick off
 - permanent stations – status 2019
 - first suggestion of mobile station deployment 2020
 - workshops in 2020, 2021
 - 2020: task in EPOS-SP, co-operation with ORFEUS/EIDA
 - discussion of Memorandum of Collaboration: 2021
 - AdriaArray Seismology Group established on
 - May 19, 2022 (Coordinator: T. Meier)
 - start of deployment of new mobile stations: June 2022
 - (in addition to PACASE)
 - questionnaire (participants)
 - EPOS white paper on AdriaArray (October 2022)
 - ORFEUS/AdriaArray/EPOS-Workshop October 6-7, 2022, Potsdam
 - start of discussion on topics for Collaborative Research Groups
 - establishment of (technical) Working Groups
- coming soon:
- AdriaArray Workshop in Dubrovnik (Croatia), April 3-5, 2023

AdriaArray Seismology Group: structure

Members: participating groups or institutions

- Permanent stations
- Temporary stations
- Providing data, QC, methods, software, outreach, organization, fieldwork

Steering Committee: one representative per member

Groups or institutions may apply for membership

(third round: October/November 2022)

Participants: persons affiliated with member institutions or groups

Data access via EIDA:

- permanent stations: available immediately
- temporary stations: available immediately or rolling embargo of two years is applied

real-time data exchange of AdA data: according to existing institutional agreements

technical Working Groups

WG1: Station siting

(Planning of backbone network, updating inventory on permanent and temporary stations, providing information on station siting)

initial contact: P. Kolínský

WG2: Technical advice

(Discussing field work, data transmission and archiving)

initial contact: Cristian Neagoe

WG3: Data QC

(QCing data availability, noise conditions, metadata)

initial contact: Antje Schlömer, Luděk Vecsey, Johannes Stampa, Maté Timko, Felix Eckel

WG4: Communication and outreach

(Maintaining list participants, developing and updating web page, communication with participants and the public)

initial contact: Carlo Cauzzi, Cédric Legendre

WG5: Scientific co-operation

(Coordinating and supporting the establishment of Collaborative Research Groups)

initial contact: Thomas Meier

WG6: Young researchers

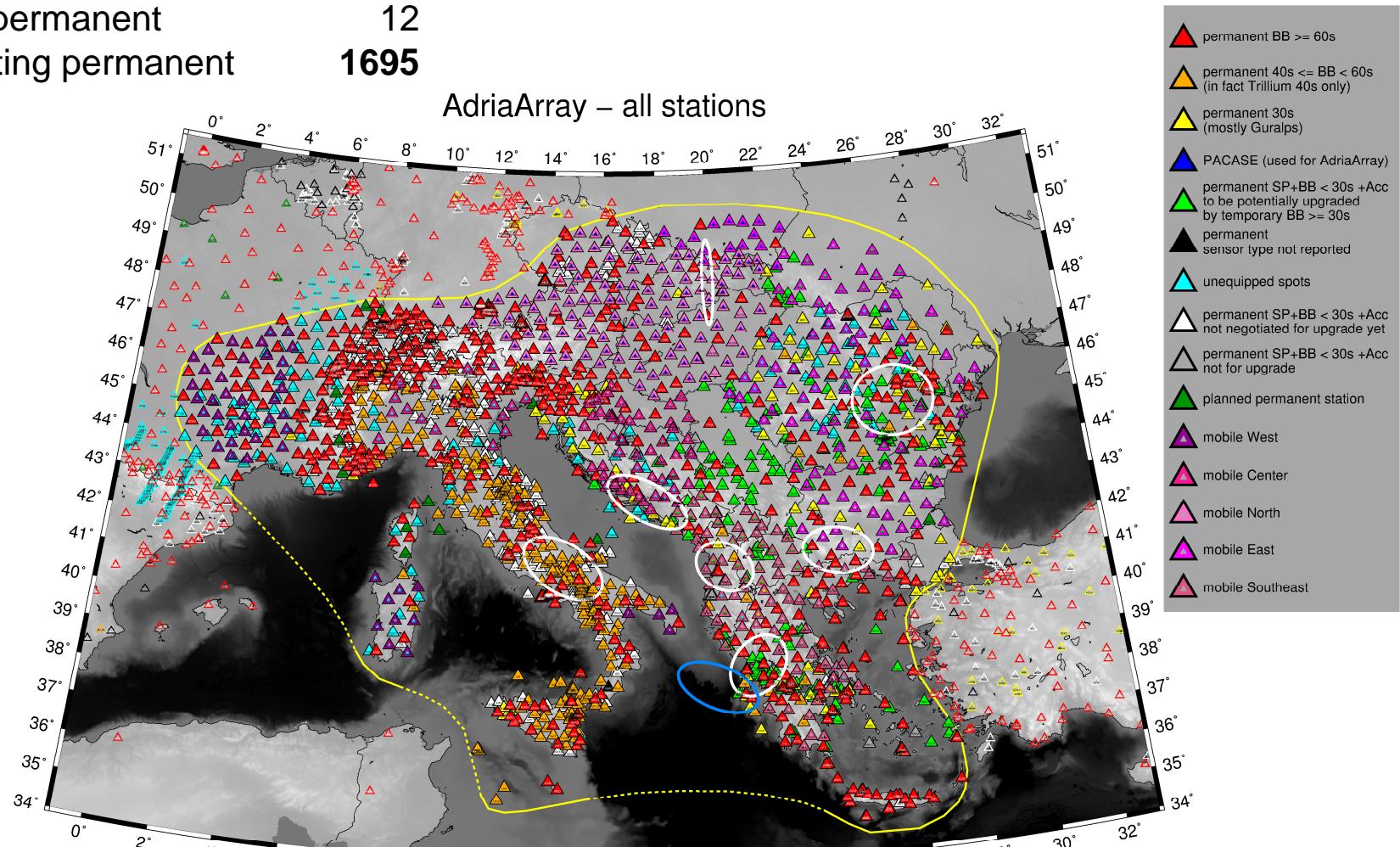
initial contact: Cédric Legendre

Adria Array – all permanent stations - update November 2022

inside AdriaArray region:

BB ($\geq 30s$)	992
SP+SM for upgrade	252
SP+SM others	450
unknown	1
planned permanent	12
total existing permanent	1695

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



permanent station inventory: sheet of 2521 stations and spots (rows) x 25 “properties” (columns)

StationInventory.xls - OpenOffice.org Calc

Soubor Úpravy Zobrazit Vložit Formát Nástroje Data Okno Nápověda

Najít Arial 10 B U

A1

name Name town previous sheet round name corner in [sec] yes=1/no=0 name table if r1=wors operat ina no=0 EID center GID+DSW/sug difficulty

Network Name Latitude Longitude elevation show Site name country Housing Sensor ph Sensor type corner period Possible spot Digitizer Caplin+qua Institute et prelin OA+OA no=Be+SN+ sug

station WGS84 WGS84 [m] village / see remark on rock, cor marketing sensor low if corner<60s marketing higher active network sens=1 IDA+de / da Gok+DSW/sug any c

GR CMG-3ESP 100s (200) 100 Janus-Trident 40 Vpp (Gain 1) 1 1 1

D Le3D-1 1

H G120 120

GR Building concrete Lennartz20s+CMG-5T 20 0 SMART24 100 4 NOA Evan 1 1 NOA 1 1

GR Urban free field concrete TrilCompact120s 120 Geobit SR32 100 3 UPAT Soko 1 1 NOA 1 1

RO underground shaft concrete CMG40T 30 1 Q330 100 3 NIEP 1 0 0 0

GR Free field bedrock G120s 120 Guralp Minim 100 2 UPAT Soko 1 1 NOA 1 1

I NANOMETRICS TRILL 40

CZ L43D 1

I GEOTECH KS-2000ED 30

GR Free field bedrock G60s 60 PS6-SC 100 1 NOA Evan 1 1 NOA 1 1

D CMG-3ESPC 60s 60

B A 1

TR 120 120

GR Urban free field concrete G120s 120 Guralp DM24 100 2 UPAT Soko 1 1 NOA 1 1

I NANOMETRICS TRILL 40

GR CMG-3ESP 100s (200) 100 Janus-Trident 40 Vpp (Gain 1) 1 1 1

GR Apeiranthos, Naxos Special bedrock STS2 120 PS6-SC 100 1 NOA Evan 1 1 NOA 1 1

I NANOMETRICS TRILL 40

IV APIE 43.55846 12.41991 488 1

IV APPI 46.47868 11.22813 1056 1

IV APRC 41.75738 15.54308 672 1

MN AQU 42.354 13.405 1 L'Aquila, Italy

FR ARBF 43.491700 5.332500 1 technopole de l'Arbois - 13001, F

CA ARBS 42.434492 1.533754 0 E G120 120

RO ARCB 44.4667 26.0758 125 1 Arcul de Triumf RO building concrete Episensor_2g_2_5vfs 2 1 k2 100 4 NIEP 1 0 0 0

IV ARCI 42.8519 11.4754 1080 1

NL ARCN 51.5013 6.1942 0

RO ARCR 47.0855 24.3537 385 1 Arcalia RO underground shaft concrete STS2 120 Q330 100 3 NIEP 1 0 0 0

HL ARG 36.21356 28.12122 1 Archaggelos, Rhodes GR Special bedrock Lennartz20s 20 0 DR24 100 2 NOA Evan 1 1 NOA 1 1

KO ARMT 40.5683 28.866 320 0

RO ARR 45.3657 24.6332 871 1 Vidraru RO special bedrock CMG3ESP 59 Q330 100 3 NIEP 1 1 NIEP 1 1

IV ARRO 42.57917 12.76567 253 1

OE ARSA 47.250500 15.523200 1 Arzberg, Steiermark A STS2 120

FR ARTF 43.588200 5.806700 1 Artigues - 83006 - Var - Provence, F Trillium 120PH 120

IV ARVD 43.49807 12.94153 461 1

RO ASE 44.4445 26.0904 85 1 Academia de Studii Economice RO building concrete Episensor_2g_2_5vfs 2 1 k2 100 4 NIEP 1 0 0 0

IV ASOL 45.8003 11.9023 181 1

IV ASQU 43.7967 11.7893 860 1

IV ASSB 43.0426 12.6587 734 1

HA ATAL 38.6926 23.0213 1 Atalanti GR G120s 120 100 NKUA G.Ka 1 1 NOA 1 1

IV ATBU 43.47571 12.54828 1000 1

IV ATCC 43.18514 12.63994 557 1

FR ATE 43.085800 -0.700700 0 Arette - 64040 - Pyrenees-Atlan, F STS2 120 DR24 100 1 NOA Evan 1 1 NOA 1 1

IV ATFO 43.3666 12.5715 960 1

GR Special bedrock STS2 120 100 NKUA G.Ka 1 1 NOA 1 1

HL ATH 37.97384 23.71767 1 Athens GR G60s 60

HA ATHU 37.9665 23.7845 1 AthensUniversity GR LENNARTZ LE3D-5S 5

IV ATLO 43.31516 12.40726 584 1

LENNARTZ LE3D-5S 5

Stations

List 1/1 PageStyle_Stations STD * Celkem=0 110% 110%

- Python script (725 lines) to distill the required information from the sheet
- produces files for plotting by GMT (script 1794 lines)

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d: > 16AdriaArray > stations > xmmaps > extract.py
85     citacBB30 = citacBB30 + 1
86     outBB30.write ("\"%s\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]))) # s
87     csvBB30.write ("\"%s\n" % (str(inventory.iloc[n,2]) + ' ' + str(inventory.iloc[n,3]) + ' ' +
88     csvBB300.write("\"%s\n" % (str(inventory.iloc[n,2]) + ' ' + str(inventory.iloc[n,3]) + ',30
89     csvBB3040.write("\"%s\n" % (str(inventory.iloc[n,2]) + ' ' + str(inventory.iloc[n,3]) + ',40
90     labBB30.write ("\"%s\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]) + '\t'
91     # BB 40 out
92     if inventory.iloc[n,5] == 0 and inventory.iloc[n,11] >= 30 and inventory.iloc[n,11] < 40: # to
93         citacBB40 = citacBB30 + 1
94         outBB40.write("%s\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]))) # st
95         labBB40.write("%s\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 ("\"%s\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]))) # s
100        csvBB40.write ("\"%s\n" % (str(inventory.iloc[n,2]) + ' ' + str(inventory.iloc[n,3]) + ' '
101        csvBB400.write("\"%s\n" % (str(inventory.iloc[n,2]) + ' ' + str(inventory.iloc[n,3]) + ',30
102        csvBB4040.write("\"%s\n" % (str(inventory.iloc[n,2]) + ' ' + str(inventory.iloc[n,3]) + ',40
103        labBB40.write ("\"%s\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("%s\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]))) # st
108         labBB40.write("%s\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 ("\"%s\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]))) # s
113         csvBB60.write ("\"%s\n" % (str(inventory.iloc[n,2]) + ' ' + str(inventory.iloc[n,3]) + ' '
114         csvBB600.write("\"%s\n" % (str(inventory.iloc[n,2]) + ' ' + str(inventory.iloc[n,3]) + ',30
115         csvBB6040.write("\"%s\n" % (str(inventory.iloc[n,2]) + ' ' + str(inventory.iloc[n,3]) + ',40
116         labBB60.write ("\"%s\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("%s\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]))) # st
121         labBB60.write("%s\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("\"%s\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]))) # sta
126         labUNKN.write("%s\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]) + '\t' +
127         csvUNKN.write("\"%s\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("\"%s\n" % (str(inventory.iloc[n,3]) + ' ' + str(inventory.iloc[n,2]))) # st
132         labUNKN0.write("%s\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

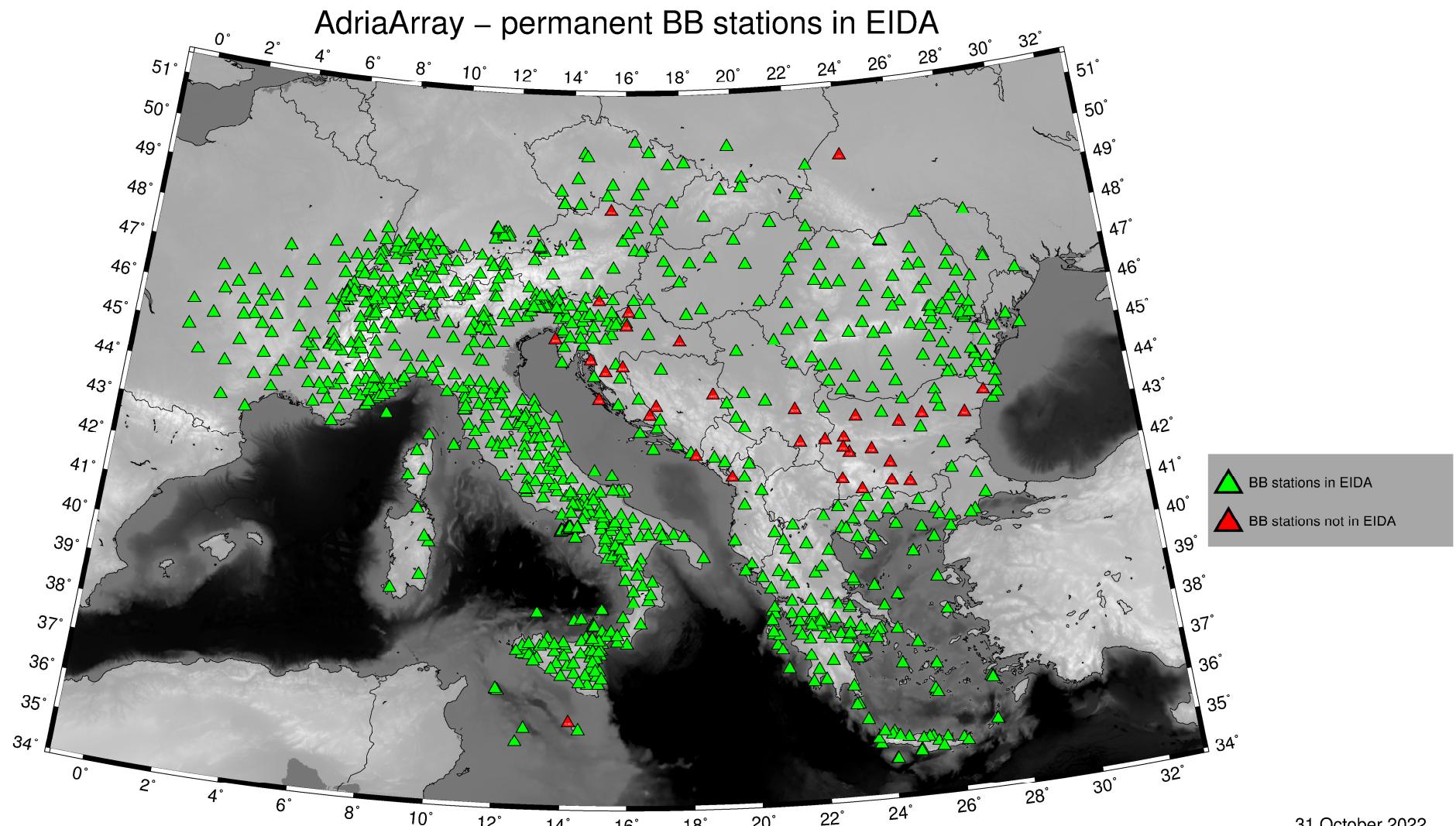
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when the „final“ version of inventory and scripts are ready, they will be **freely available** for anyone for plotting the station maps

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1. aktuality.html 2. usuketencne20.html 3. fotkyzakoi20.html 4. menu.html 5. zapisy.html 6. index.html 7. fero.css 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 1891 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 1991 2000 2010 2020 2030 2040 2050 2060 2070 2080 2090 2091 2100 2110 2120 2130 2140 2150 2160 2170 2180 2190 2191 2200 2210 2220 2230 2240 2250 2260 2270 2280 2290 2291 2300 2310 2320 2330 2340 2350 2360 2370 2380 2390 2391 2400 2410 2420 2430 2440 2450 2460 2470 2480 2490 2491 2500 2510 2520 2530 2540 2550 2560 2570 2580 2590 2591 2600 2610 2620 2630 2640 2650 2660 2670 2680 2690 2691 2700 2710 2720 2730 2740 2750 2760 2770 2780 2790 2791 2800 2810 2820 2830 2840 2850 2860 2870 2880 2890 2891 2900 2910 2920 2930 2940 2950 2960 2970 2980 2990 2991 3000 3010 3020 3030 3040 3050 3060 3070 3080 3090 3091 3100 3110 3120 3130 3140 3150 3160 3170 3180 3190 3191 3200 3210 3220 3230 3240 3250 3260 3270 3280 3290 3291 3300 3310 3320 3330 3340 3350 3360 3370 3380 3390 3391 3400 3410 3420 3430 3440 3450 3460 3470 3480 3490 3491 3500 3510 3520 3530 3540 3550 3560 3570 3580 3590 3591 3600 3610 3620 3630 3640 3650 3660 3670 3680 3690 3691 3700 3710 3720 3730 3740 3750 3760 3770 3780 3790 3791 3800 3810 3820 3830 3840 3850 3860 3870 3880 3890 3891 3900 3910 3920 3930 3940 3950 3960 3970 3980 3990 3991 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7640 7650 7660 7670 7680 7690 7691 7700 7710 7720 7730 7740 7750 7760 7770 7780 7790 7791 7800 7810 7820 7830 7840 7850 7860 7870 7880 7890 7891 7900 7910 7920 7930 7940 7950 7960 7970 7980 7990 7991 8000 8010 8020 8030 8040 8050 8060 8070 8080 8090 8091 8100 8110 8120 8130 8140 8150 8160 8170 8180 8190 8191 8200 8210 8220 8230 8240 8250 8260 8270 8280 8290 8291 8300 8310 8320 8330 8340 8350 8360 8370 8380 8390 8391 8400 8410 8420 8430 8440 8450 8460 8470 8480 8490 8491 8500 8510 8520 8530 8540 8550 8560 8570 8580 8590 8591 8600 8610 8620 8630 8640 8650 8660 8670 8680 8690 8691 8700 8710 8720 8730 8740 8750 8760 8770 8780 8790 8791 8800 8810 8820 8830 8840 8850 8860 8870 8880 8890 8891 8900 8910 8920 8930 8940 8950 8960 8970 8980 8990 8991 9000 9010 9020 9030 9040 9050 9060 9070 9080 9090 9091 9100 9110 9120 9130 9140 9150 9160 9170 9180 9190 9191 9200 9210 9220 9230 9240 9250 9260 9270 9280 9290 9291 9300 9310 9320 9330 9340 9350 9360 9370 9380 9390 9391 9400 9410 9420 9430 9440 9450 9460 9470 9480 9490 9491 9500 9510 9520 9530 9540 9550 9560 9570 9580 9590 9591 9600 9610 9620 9630 9640 9650 9660 9670 9680 9690 9691 9700 9710 9720 9730 9740 9750 9760 9770 9780 9790 9791 9800 9810 9820 9830 9840 9850 9860 9870 9880 9890 9891 9900 9910 9920 9930 9940 9950 9960 9970 9980 9990 9991 10000 10010 10020 10030 10040 10050 10060 10070 10080 10090 10091 10100 10110 10120 10130 10140 10150 10160 10170 10180 10190 10191 10200 10210 10220 10230 10240 10250 10260 10270 10280 10290 10291 10300 10310 10320 10330 10340 10350 10360 10370 10380 10390 10391 10400 10410 10420 10430 10440 10450 10460 10470 10480 10490 10491 10500 10510 10520 10530 10540 10550 10560 10570 10580 10590 10591 10600 10610 10620 10630 10640 10650 10660 10670 10680 10690 10691 10700 10710 10720 10730 10740 10750 10760 10770 10780 10790 10791 10800 10810 10820 10830 10840 10850 10860 10870 10880 10890 10891 10900 10910 10920 10930 10940 10950 10960 10970 10980 10990 10991 11000 11010 11020 11030 11040 11050 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14080 14090 14091 14100 14110 14120 14130 14140 14150 14160 14170 14180 14190 14191 14200 14210 14220 14230 14240 14250 14260 14270 14280 14290 14291 14300 14310 14320 14330 14340 14350 14360 14370 14380 14390 14391 14400 14410 14420 14430 14440 14450 14460 14470 14480 14490 14491 14500 14510 14520 14530 14540 14550 14560 14570 14580 14590 14591 14600 14610 14620 14630 14640 14650 14660 14670 14680 14690 14691 14700 14710 14720 14730 14740 14750 14760 14770 14780 14790 14791 14800 14810 14820 14830 14840 14850 14860 14870 14880 14890 14891 14900 14910 14920 14930 14940 14950 14960 14970 14980 14990 14991 15000 15010 15020 15030 15040 15050 15060 15070 15080 15090 15091 15100 15110 15120 15130 15140 15150 15160 15170 15180 15190 15191 15200 15210 15220 15230 15240 15250 15260 15270 15280 15290 15291 15300 15310 15320 15330 15340 15350 15360 15370 15380 15390 15391 15400 15410 15420 15430 15440 15450 15460 15470 15480 15490 15491 15500 15510 15520 15530 15540 15550 15560 15570 15580 15590 15591 15600 15610 15620 15630 15640 15650 15660 15670 15680 15690 15691 15700 15710 15720 15730 15740 15750 15760 15770 15780 15790 157
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from that **992** permanent stations, **958** are already in EIDA (96.6%)
=> 34 are not in EIDA

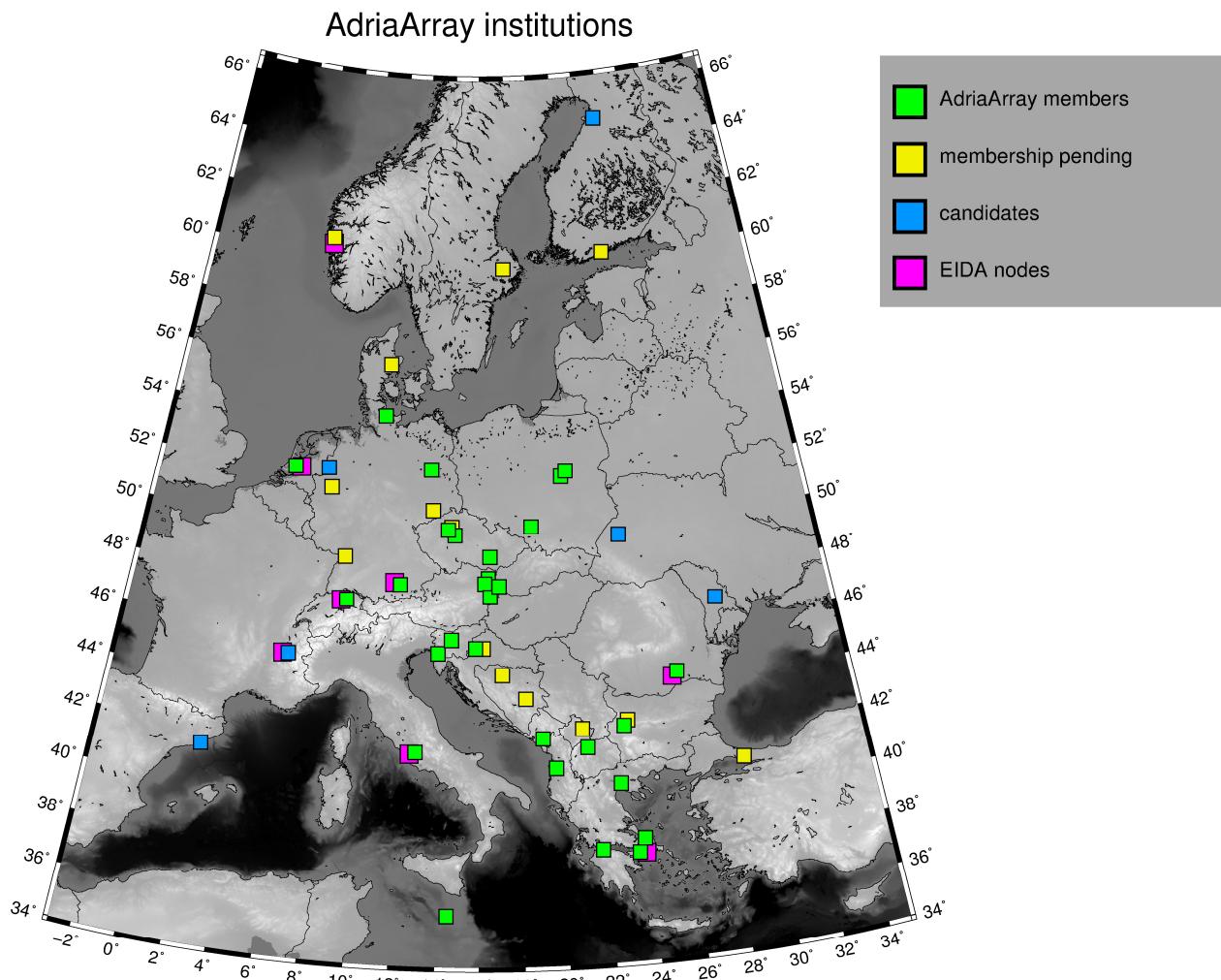


AdriaArray

Seismology Group

(November, 2022)

49 interested institutions from **27** countries (alphabetical order by countries)



MEMBERS:

IGEWE-PUT, Tirana, Albania
Uni Vienna, Austria
ZAMG, Austria
NIGGG, BAS, Bulgaria
Uni Zagreb, Croatia
Charles Uni, Prague, Czech Republic
IG, CAS, Prague, Czech Republic
IPE, Masaryk Uni, Brno, Czech Republic
Uni Kiel, Germany
LMU München, Germany
GFZ Potsdam, Germany
NOA, Greece
Uni Athens, Greece
Uni Thessaloniki, Greece
Uni Patras, Greece
EPSS, Hungary
INGV, Italy
OGS, Trieste, Italy
Uni Sts. Cyril and Methodius, Skopje, N. Macedonia
Uni Malta
MSS, Podgorica, Montenegro
IG PAS, Warsaw, Poland
Uni Silesia, Katowice, Poland
Uni Warszawa, Poland
NIEP, Romania
ESI SAV, Bratislava, Slovakia
SSS, Ljubljana, Slovenia
ETH, Zürich, Switzerland
ORFEUS

PENDING:

SC FHMZ, Sarajevo, Bosnia and Herzegovina
GS Republic of Srpska, Bosnia and Herzegovina
Uni Sofia, Bulgaria
CSS, Zagreb, Croatia
IRSM, CAS, Prague, Czech Republic
Uni Aarhus, Denmark
Uni Helsinki, Finland
Karlsruhe I.T., Germany
TU Freiberg, Germany
GS Kosovo, Pristina, Kosovo
Uni Uppsala, Sweden,
KOERI, Turkiye
Uni Bochum, Germany
Norwegian Broadband Pool, Norway

CANDIDATES:

Uni Oulu, Finland
RESIF-Sismob, France
IGS-CES, Chisinau, Moldova
Uni Twente, the Netherlands
ICTJA-CSIC, Barcelona, Spain
IoG, NAS, Ukraine

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	0	-4
Denmark					4	15	19	19	0
Helsinki					16		16	20	4
NIEP				3			3	3	0
Oulu					9		9	10	1
???			2				2	0	-2
Poland	15	14					29	29	0
							100	99	-1
sum of rows	15	14	2	3	41	25	100 sums	available	spare
needed	15	14	2	3	41	25	100 needed		
30s NOT replaced									
NORTH	CzechRep	Austria	Slovakia	Hungary	Serbia	Germany	sum columns	available	spare
	UniWien		19	9			28	30	2
IG CzechRep	15		20				35	35	0
Hungary PACASE				11			11	11	0
Hungary new				4			4	4	0
Kiel		15		15		8	38	40	2
							116	120	4
sum of rows	15	34	29	30	0	8	116 sums	available	spare
needed	15	34	29	30	0	8	116 needed		
CENTER	Croatia	BiH	N. Italy	Slovenia			sum columns	available	spare
	NorwPool+Zag	13	1				14	14	0
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	9	0
							69	69	0
sum of rows	32	21	16	0			69 sums	available	spare
needed	32	21	16	0			69 needed		
SOUTHEAST	Albania	N. Macedonia	Montenegro	Kosovo	Greece		sum columns	available	spare
	Bochum		13		38		51	54	3
Munich	9			7	3		19	20	1
KIT	5						5	5	0
Kosovo Pool				3			3	3	0
Montenegro Pool			3				3	3	0
							81	85	4
sum of rows	14	13	10	6	38		81 sums	available	spare
needed	14	13	10	6	38		81 needed		
WEST	Apulia	Sicily	Sardinia	Massif Cent.	Switzerland		sum columns	available	spare
	Spain	4					4	5	1
???			9				9	0	
France				35			35	35	0
							48	40	-8
sum of rows	4	0	9	35	0		48 sums	available	spare
needed	4	0	9	35	0		48 needed		
							total needed	414 total available	413

numbers:

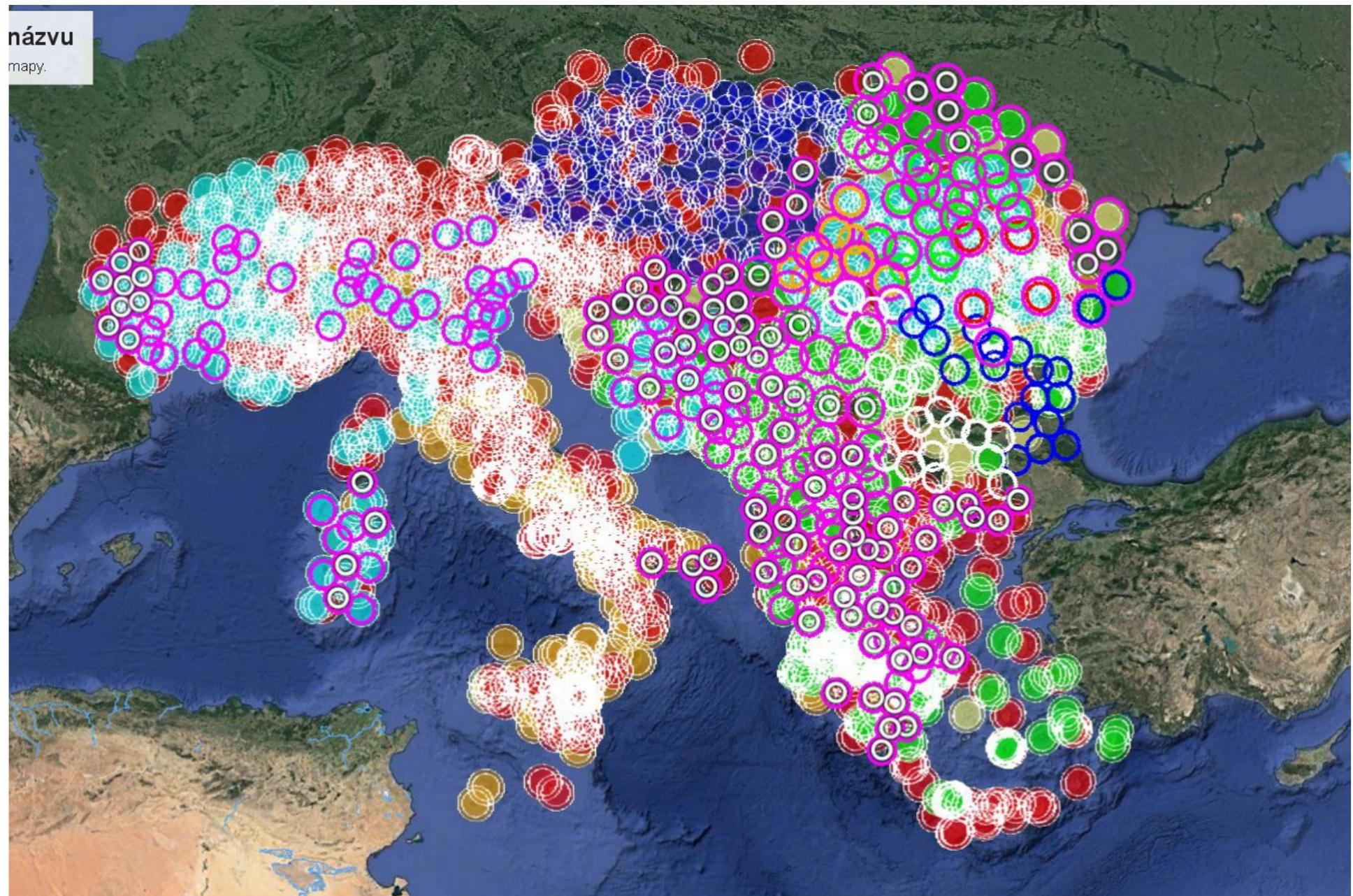
we need **414** temporary stations

262 out of these ARE ALREADY deployed (including the PACASE project)

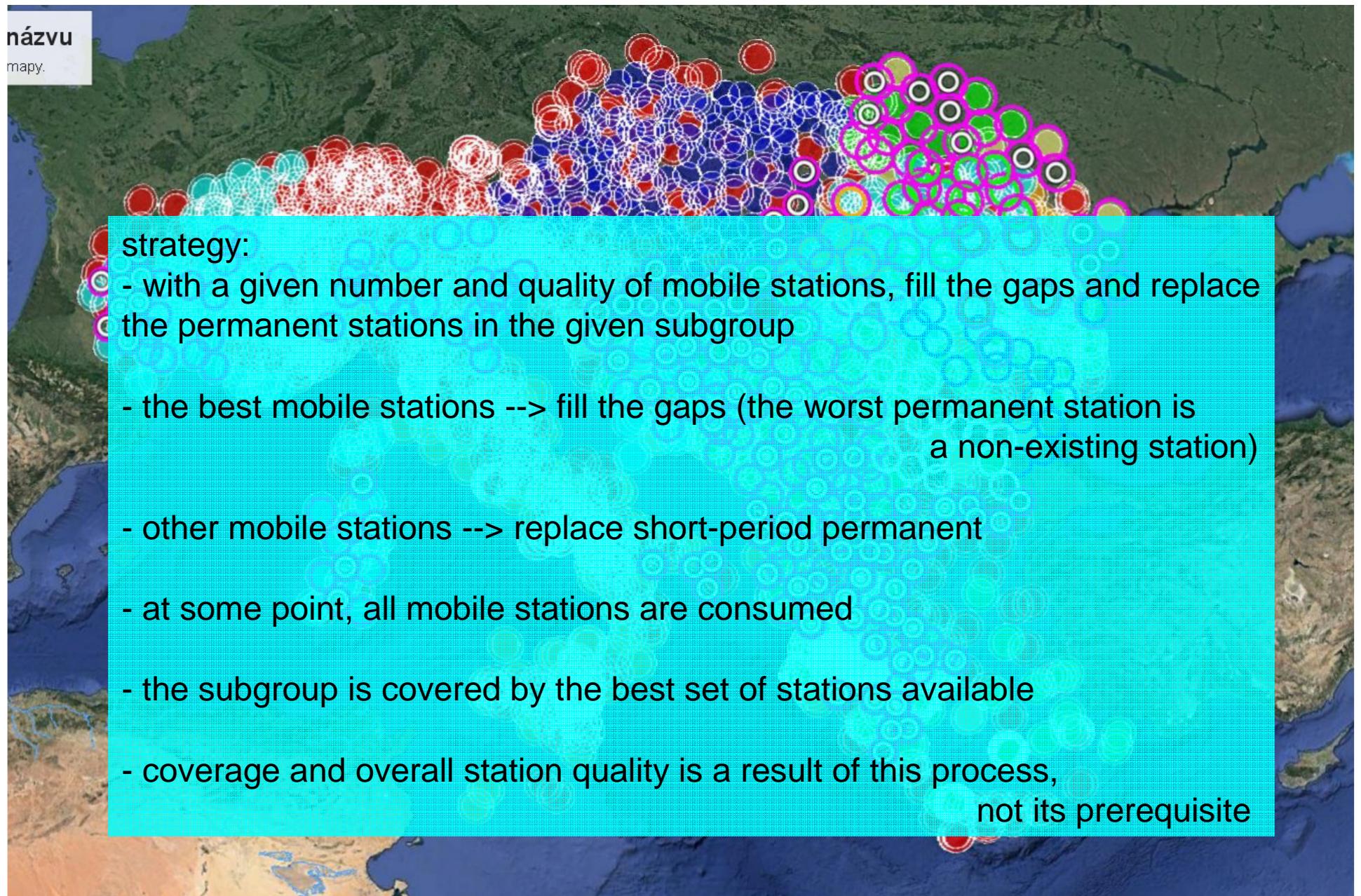
meaning, “only” **152** stations to go!

November 2022 = most of the stations will be deployed

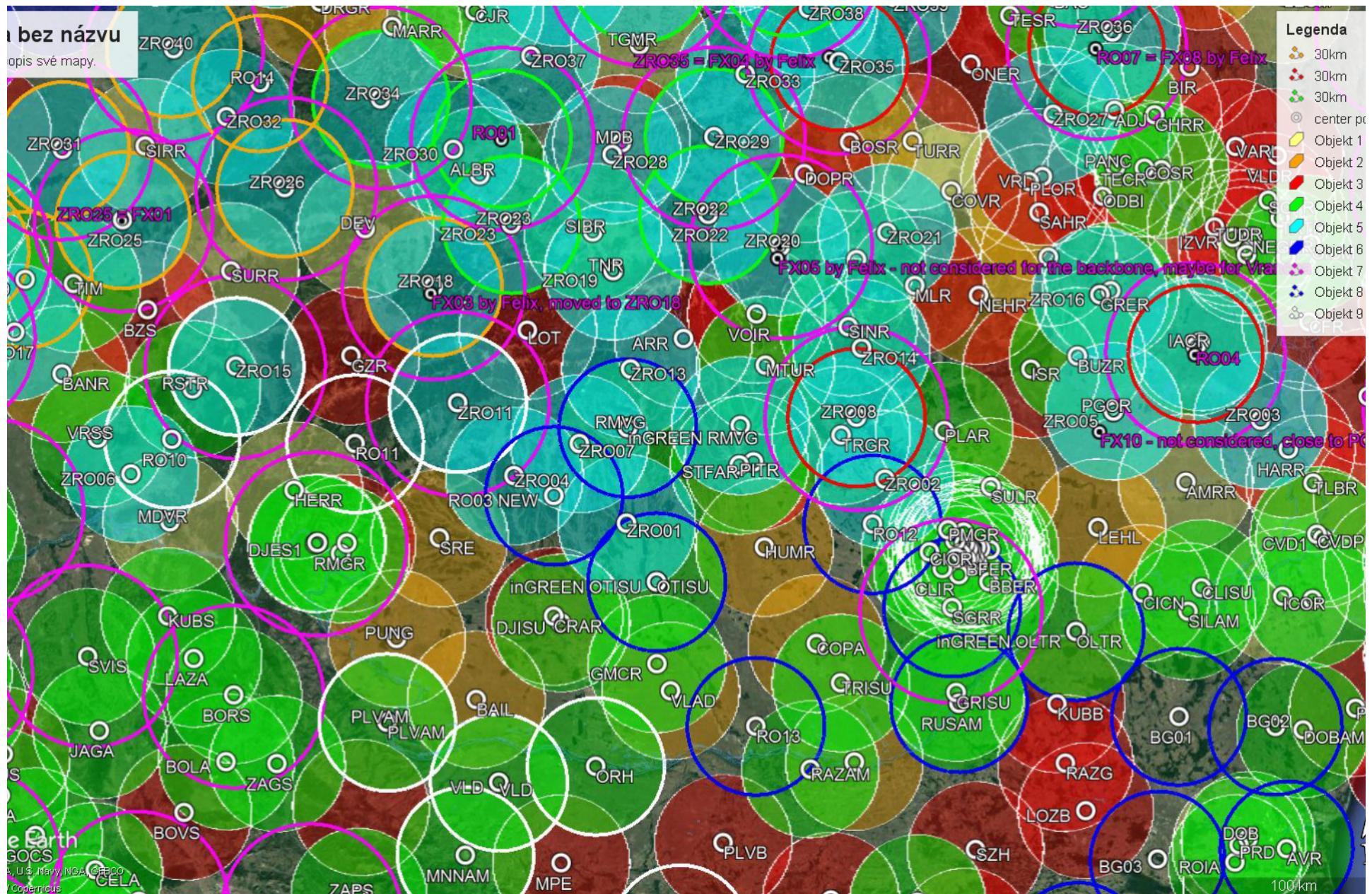
deployment of mobile stations – handmade in GoogleEarth



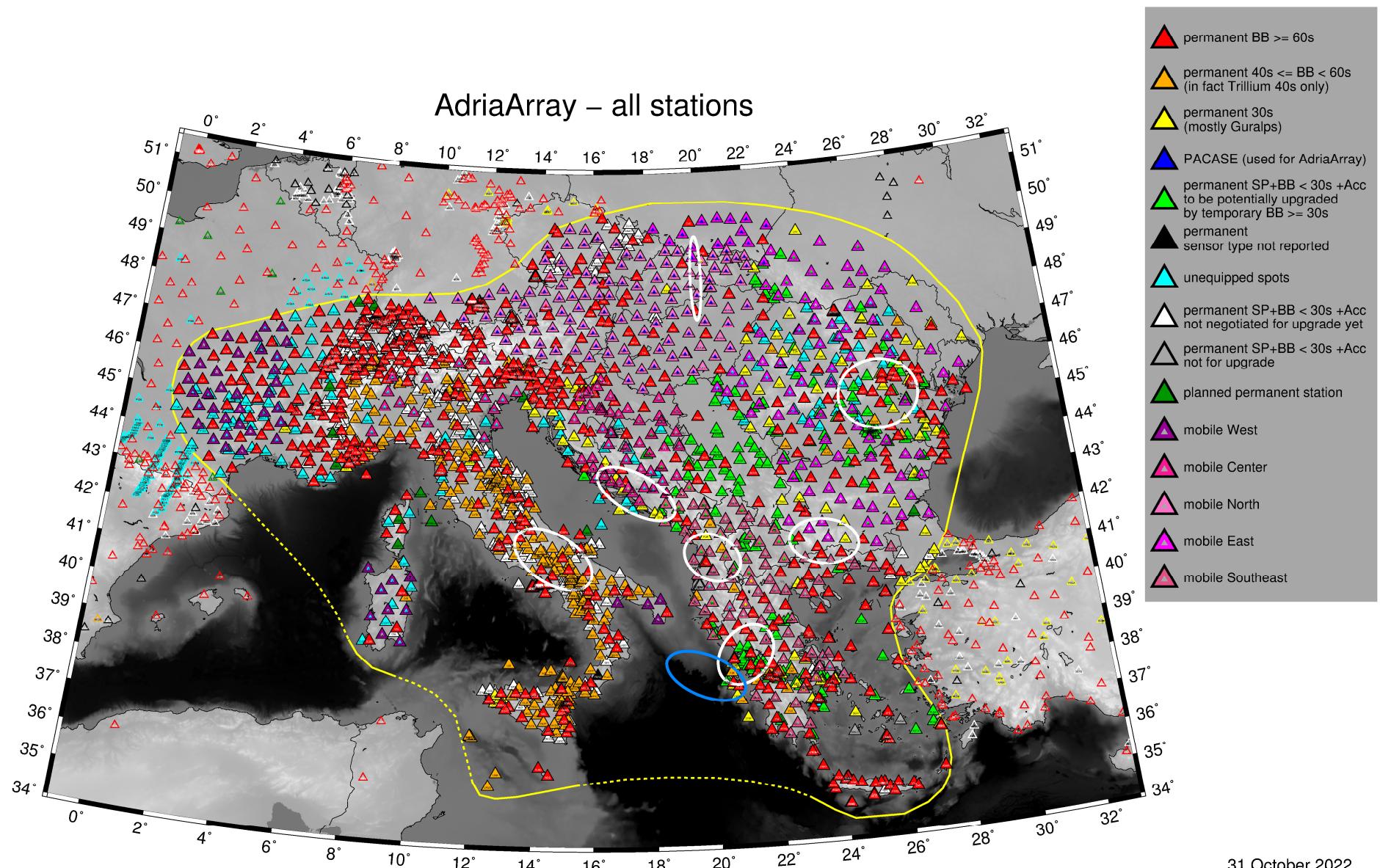
deployment of mobile stations – handmade in GoogleEarth



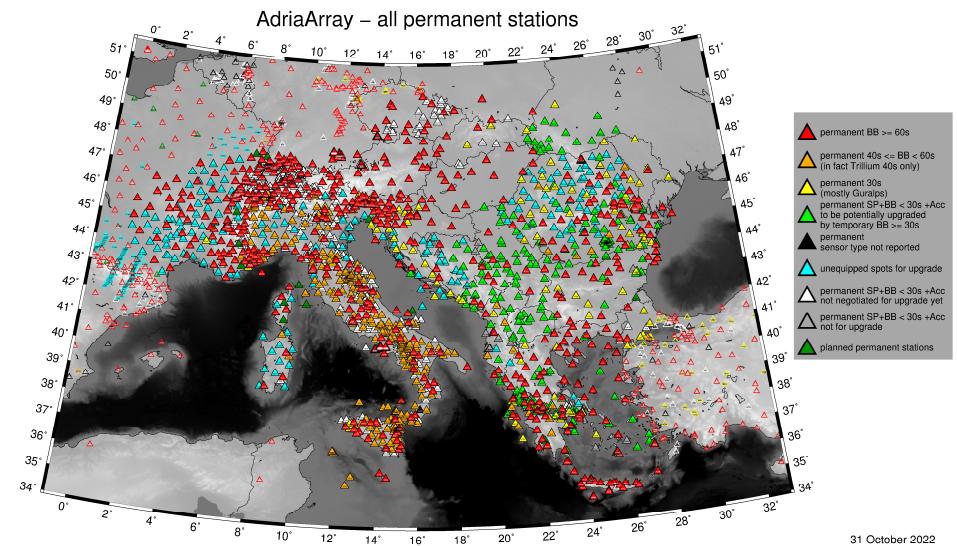
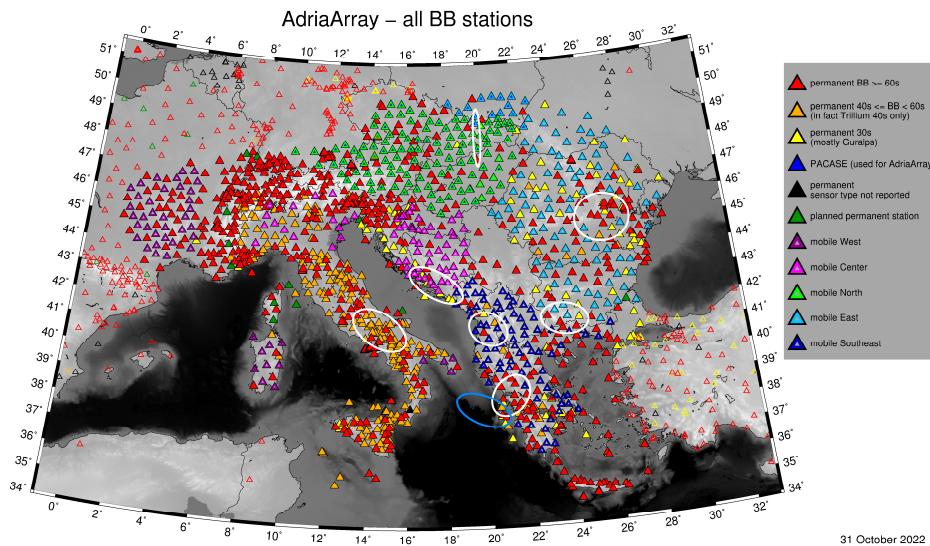
deployment of mobile stations – handmade in GoogleEarth



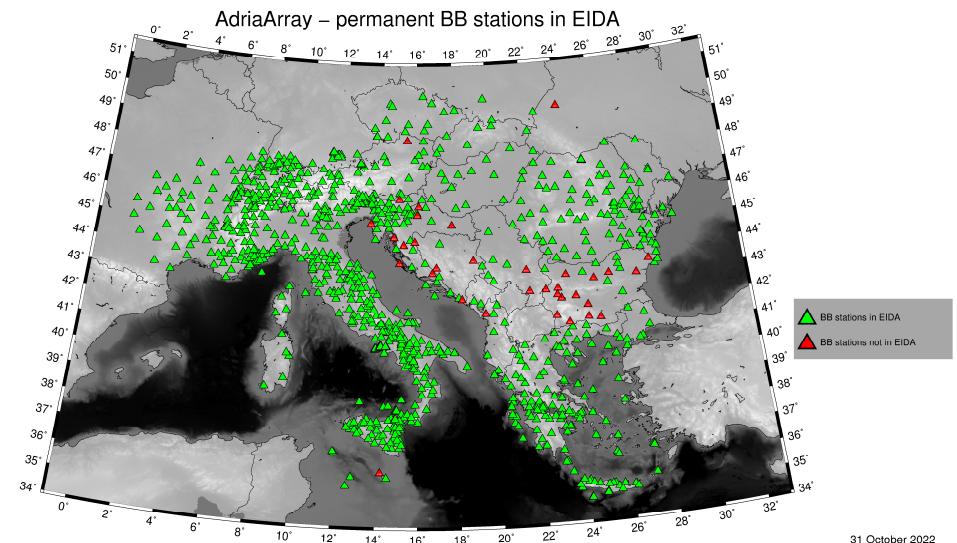
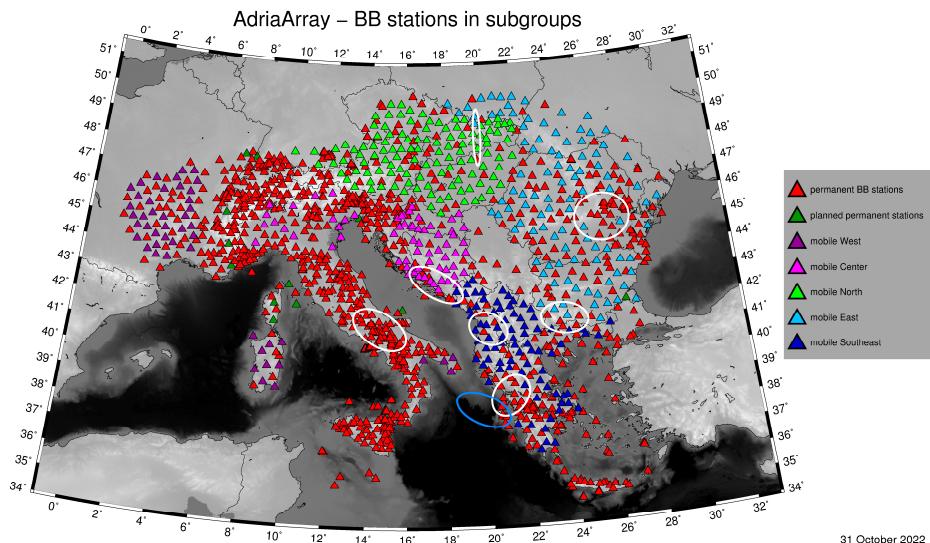
Adria Array – all permanent stations + mobile stations



31 October 2022

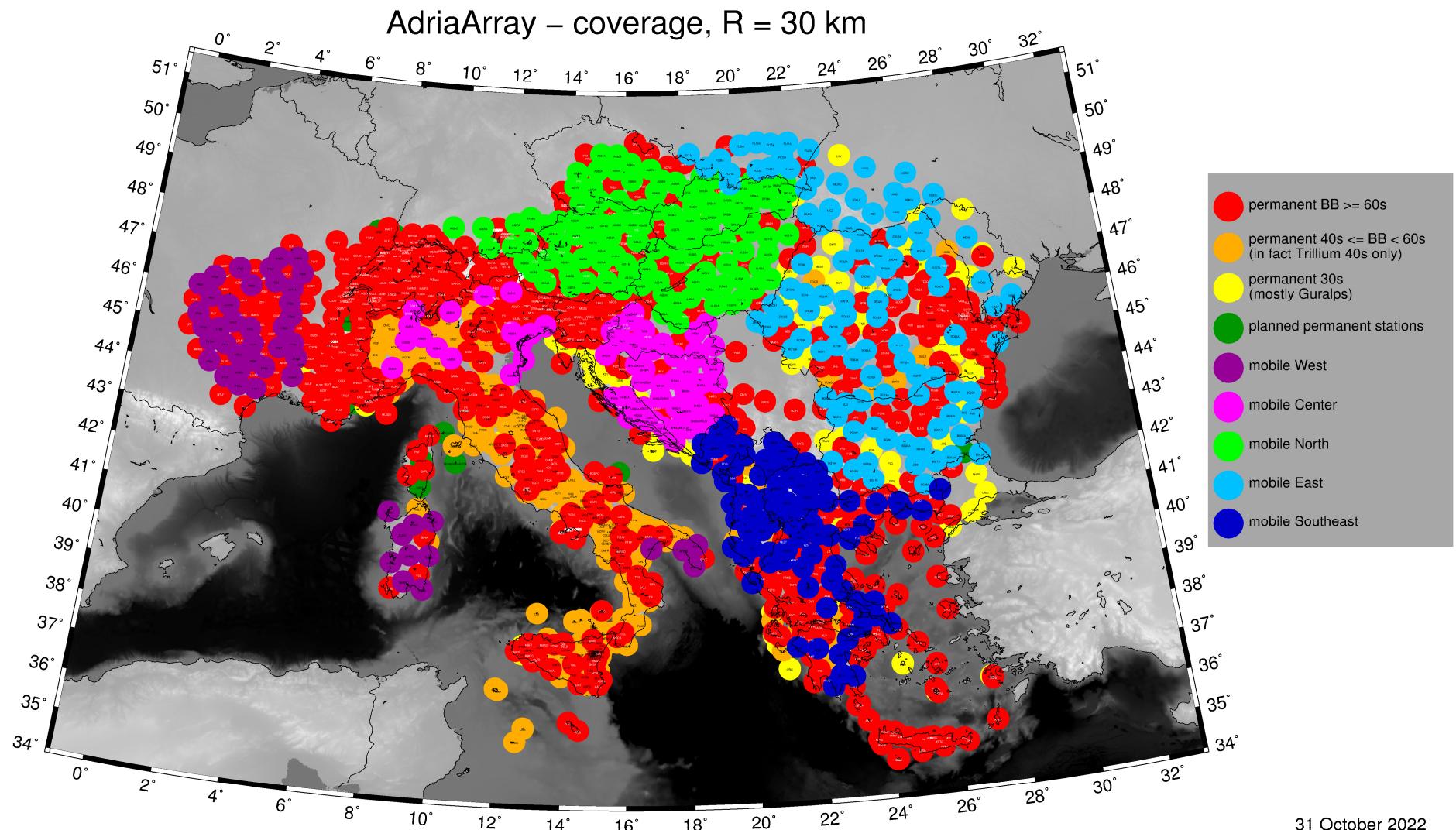


various versions of the map – different levels of information plotted



coverage

30 km

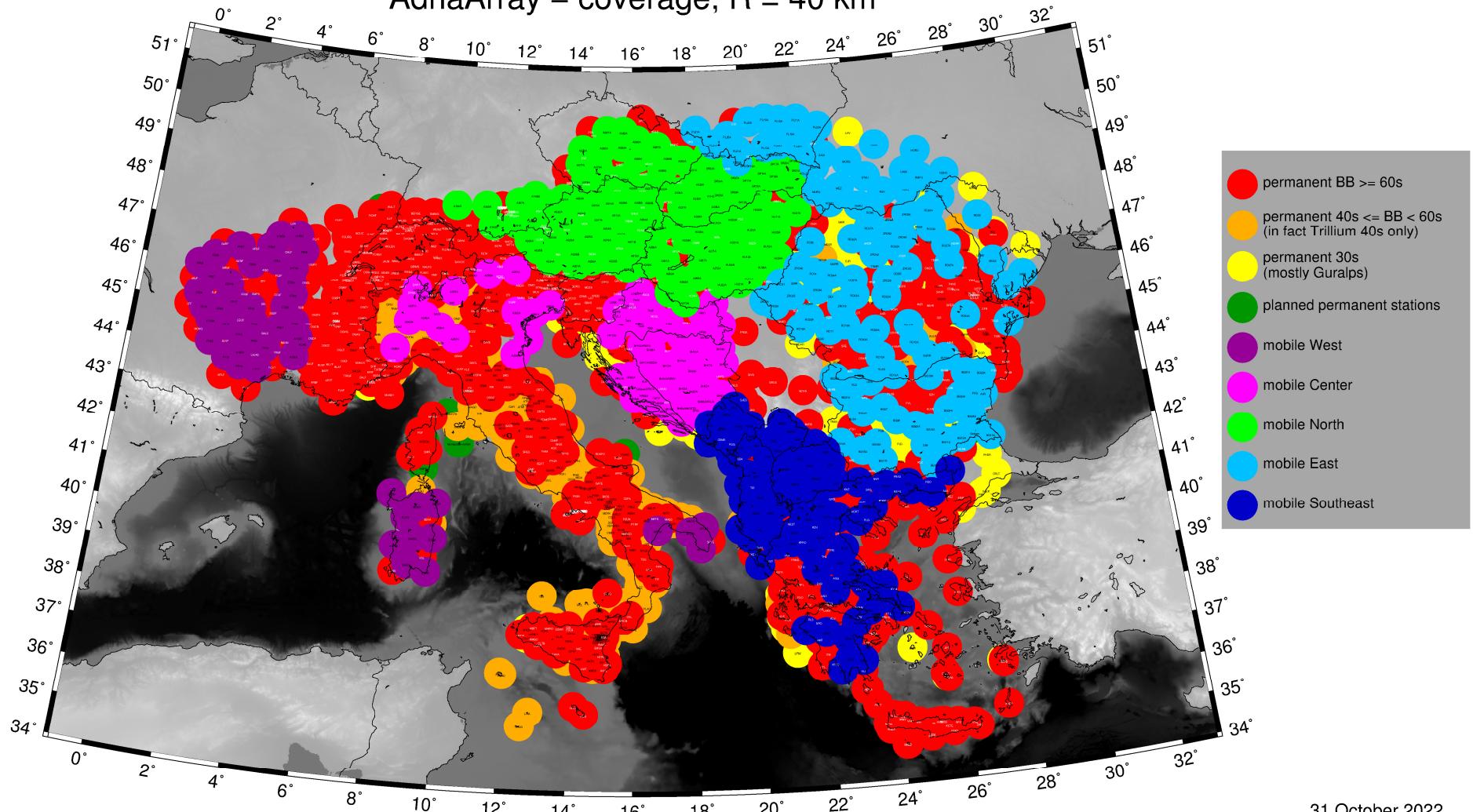


31 October 2022

coverage

40 km

AdriaArray – coverage, R = 40 km



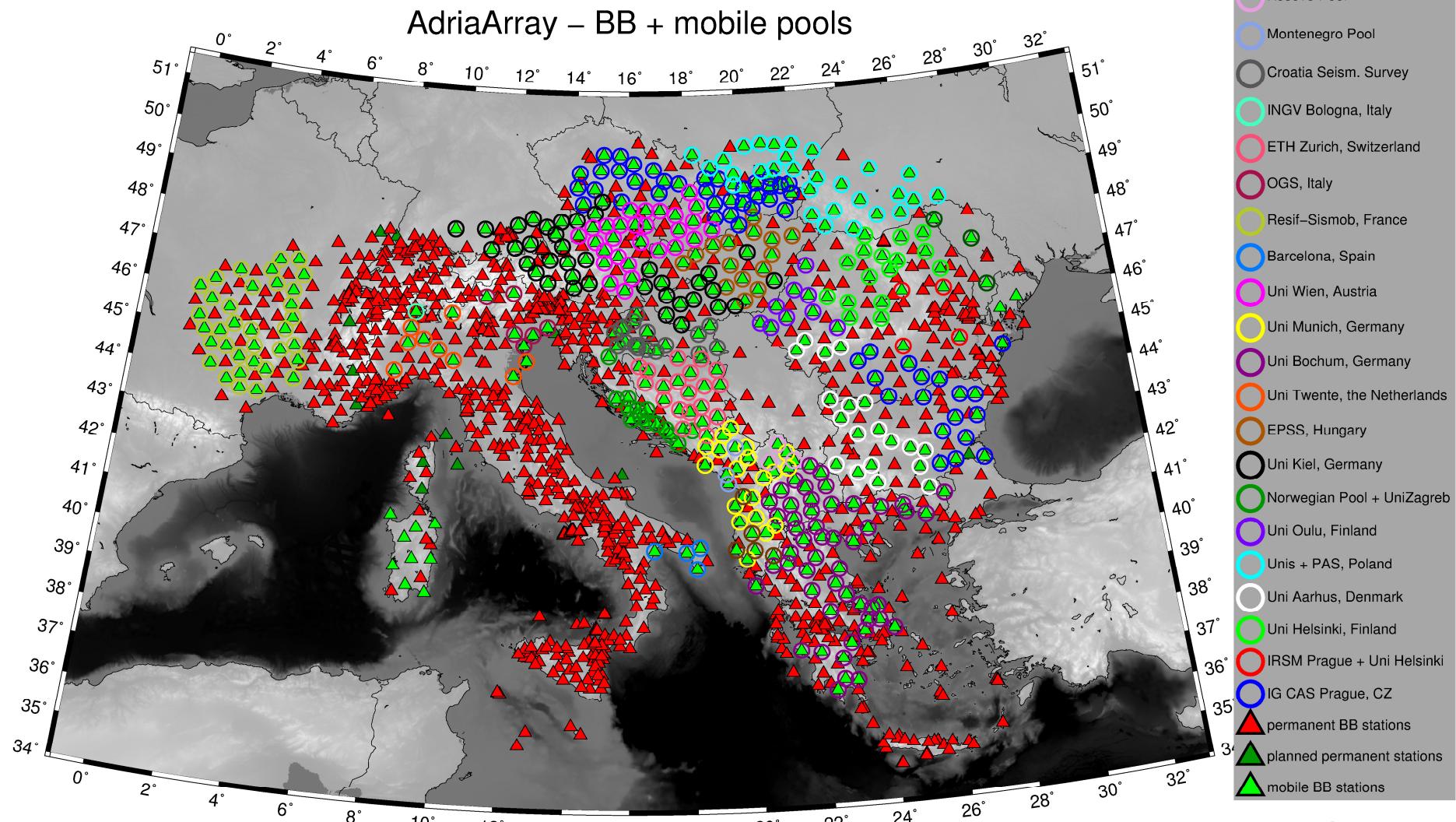
31 October 2022

mobile pools assigned to the stations

414 BB mobile stations

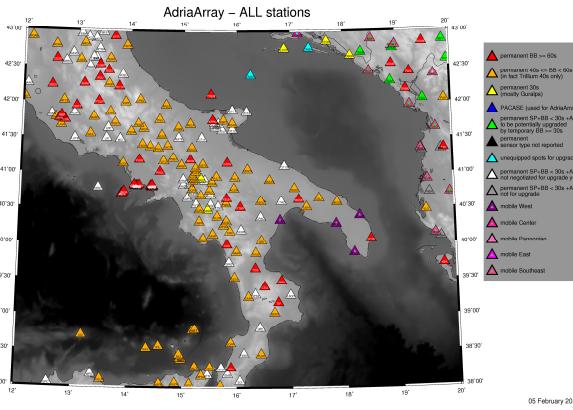
992 BB permanent stations

--> 1406 BB stations in total

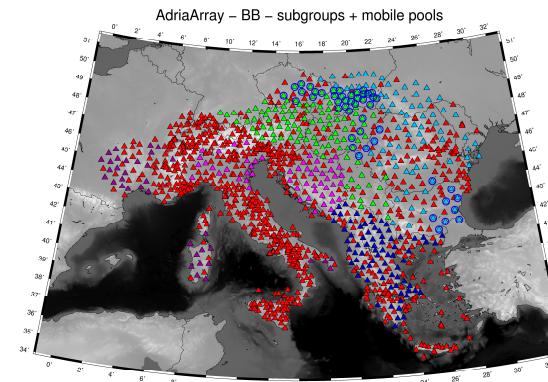


31 October 2022

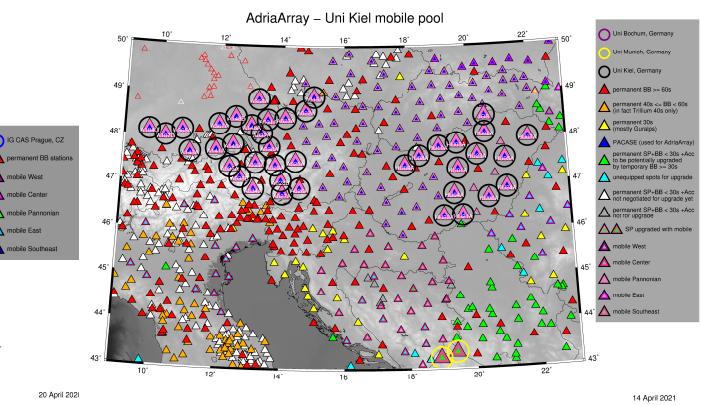
examples of maps to support project proposals



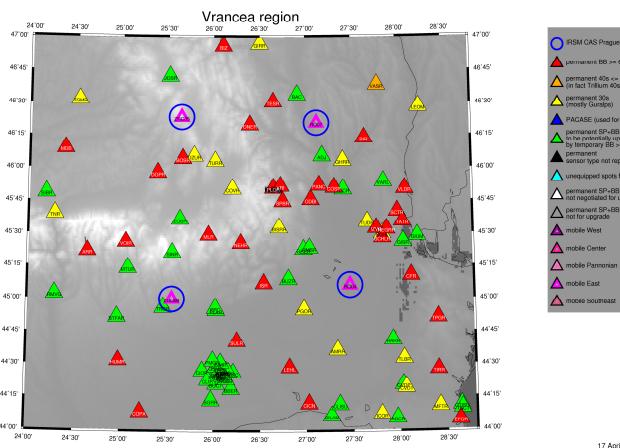
INGV



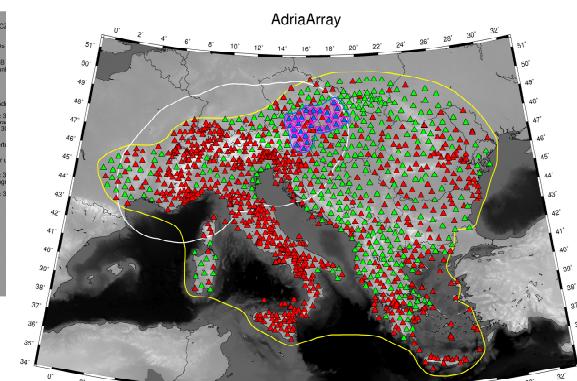
IG CAS CZ



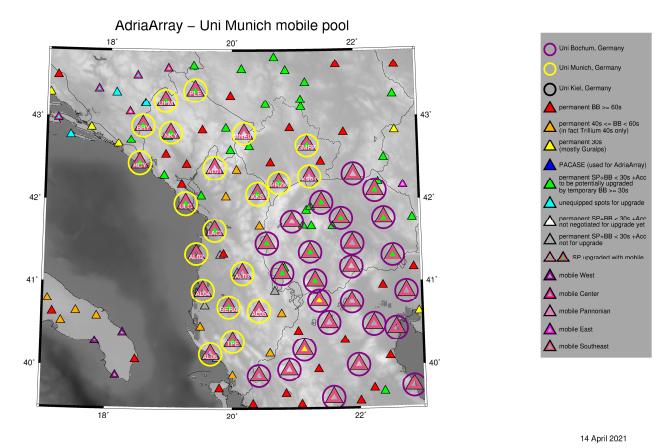
Uni Kiel



IRSM CAS CZ

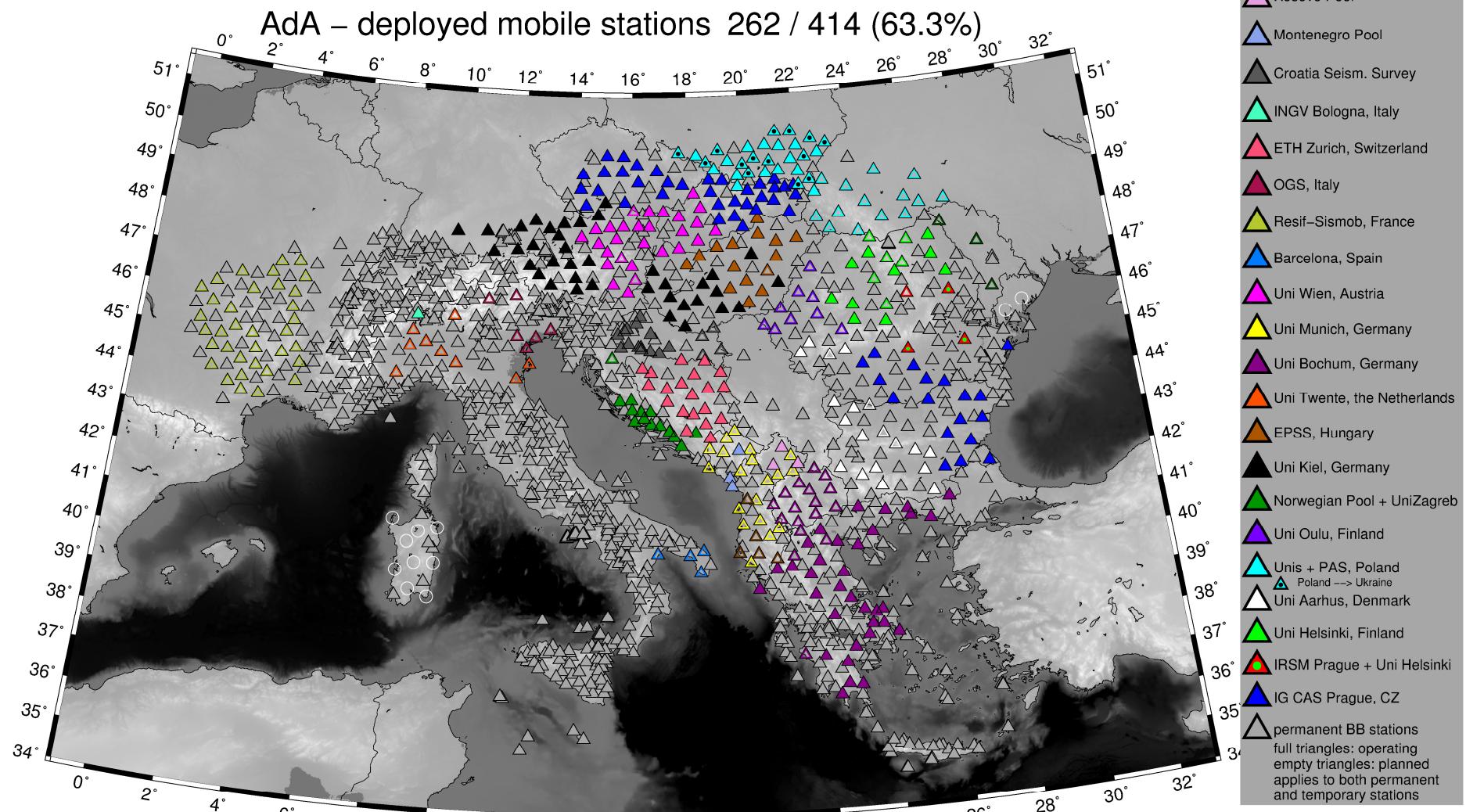


Uni Wien



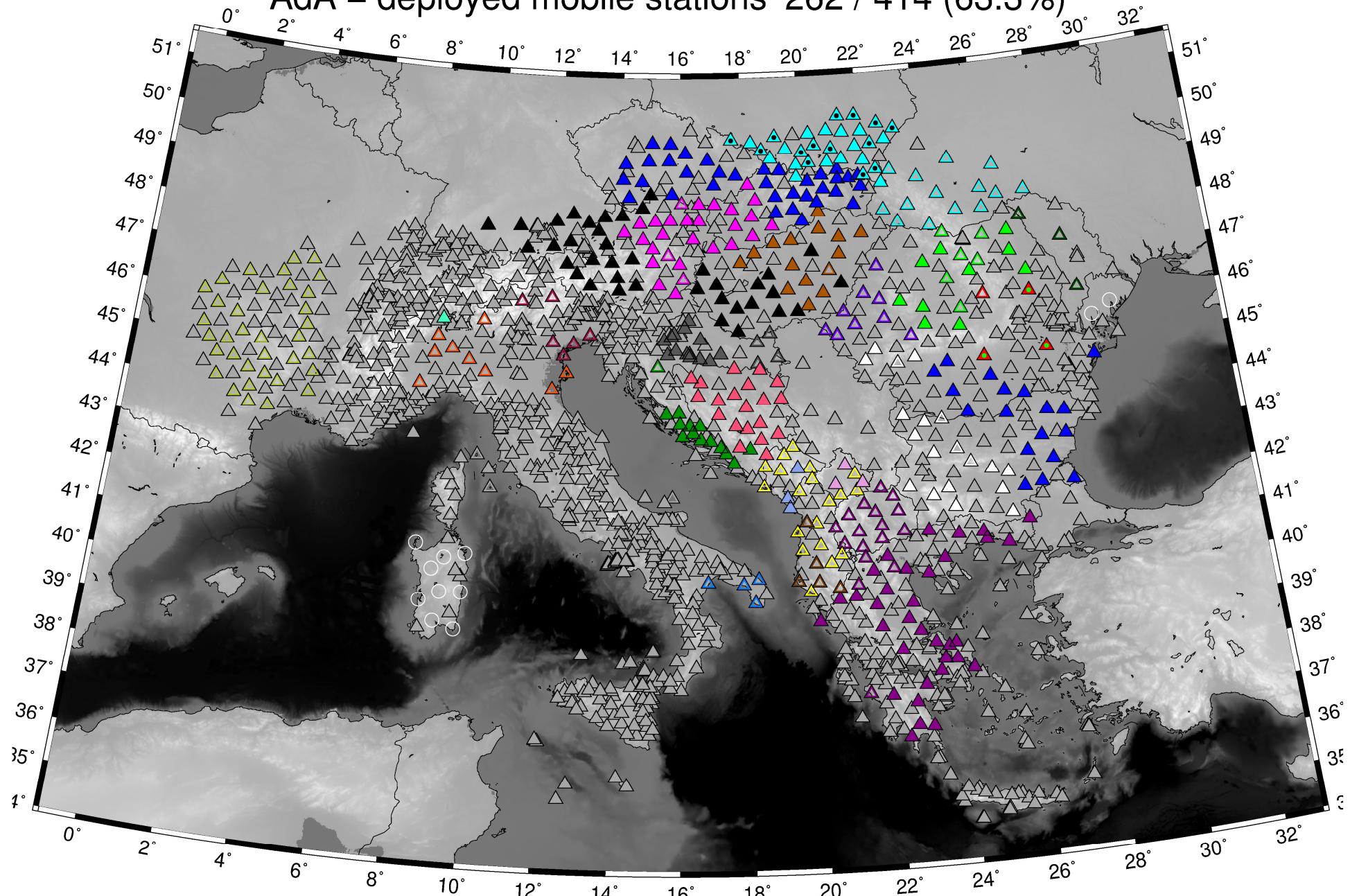
Uni Munich

deployed stations



31 October 2022

AdA – deployed mobile stations 262 / 414 (63.3%)



Starting discussion on topics of Collaborative Research Groups (CRGs)

CRGs:

- suggested by participants
- work independently
- approved by the Steering Committee
- report on activities at the AdASG Workshops
- consist of participants of at least two countries
- coordination of individual CRGs: experienced researcher + early career scientist
- members may change
- may be established at the beginning of the experiment or later

Topics for CRGs on seismological methodologies:

1. Body wave tomography (teleseismic traveltimes, LET, FWI, attenuation, coda)
2. Receiver function imaging (data processing, migration, inversion, anisotropy)
3. Surface wave analysis (ambient noise, earthquake data, FWI, Helmholtz tomography, anisotropy, attenuation)
4. Anisotropy (shear-wave splitting, tomography)
5. Seismicity (detection of seismic events, determination of travel times, location of events, LET, baseline catalogue, discrimination tectonic and induced events)
6. Source mechanisms and rupture analysis
7. Ground-shaking modelling
8. Noise analysis (natural and anthropogenic sources, imaging, environmental seismology)

Topics for CRGs on integration of various geophysical data:

- 1.Sharing of data products (dispersion curves, receiver functions, traveltimes, shear-wave splitting, polarization, catalogues)
- 2.Joint inversion of different seismological observables
- 3.Seismic hazard (seismicity models, ground-shaking models)
- 4.Bench marking of models and codes
- 5.Geophysical Model Generator (Setting up lithospheric and slab models of the Adriatic Plate and its margins, vote maps, comparison of models)
- 6.Thermo-mechanical modelling and geodynamic modelling (heat flow, topography, gravity, rheology, temperature, GPS, mantle flow, uplift)

Topics for CRGs on regional targets and inter-disciplinary topics:

- 1.Basins (e.g. Pannonian Basin)
- 2.Orogens (Carpathians, Apennines, Dinarides, Rhodopes)
- 3.Fault zones and surface deformation
- 4.Evolution of continental lithosphere (Bohemian Massive, Massive Central, inheritance)
- 5.Volcanic fields
- 6.Seismology + geochemistry
- 7.Subduction dynamics
- 8.Mantle transition zone
- 9.Deep Earth (lower mantle, core)

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



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virtual network

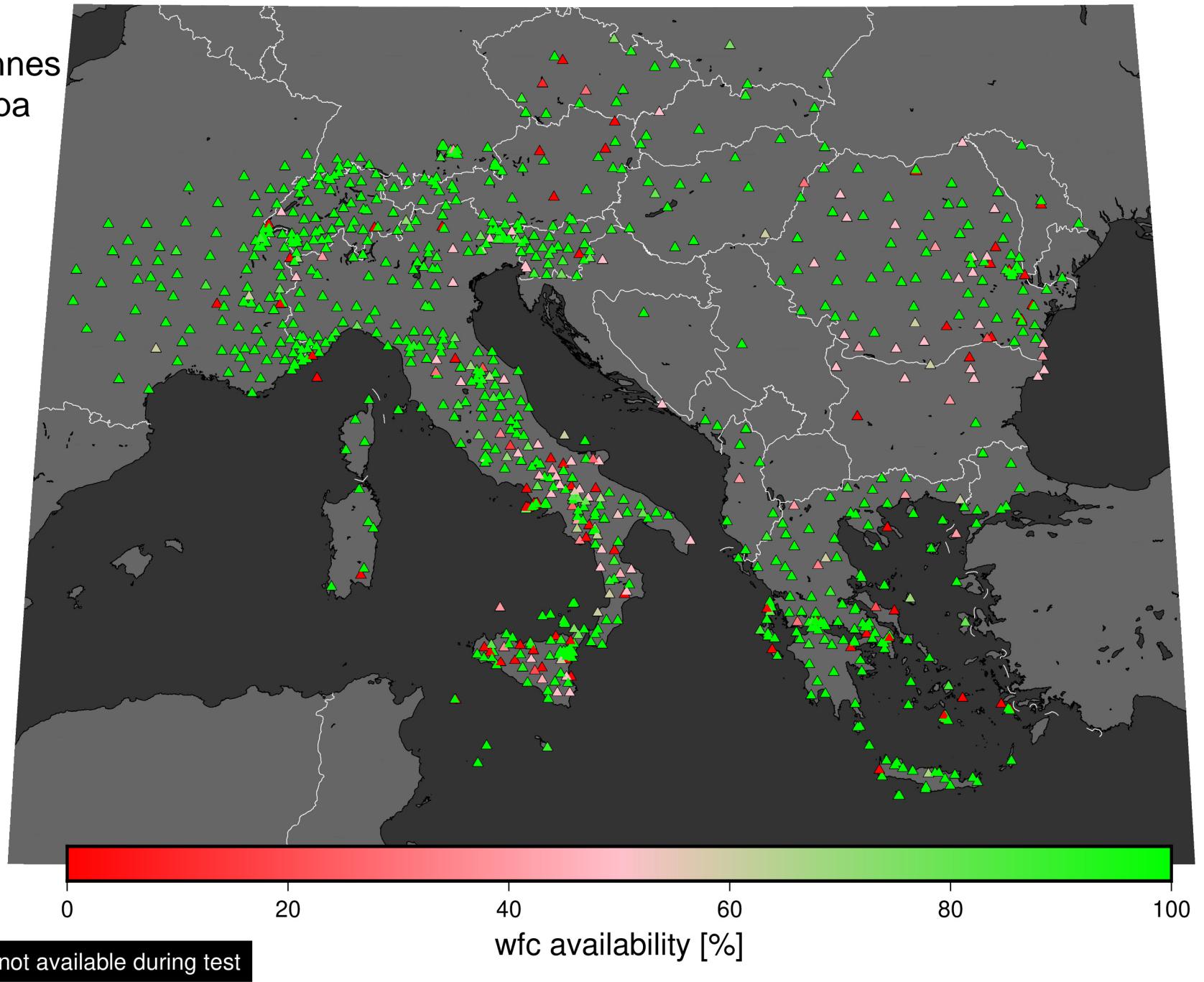
EIDA node	network code	mobile pool	open / embargo	country
NOA	1Y	Uni Bochum	embargo	Greece Northern Macedonia
NIEP	Y8	MOBNET IG CAS CZ	embargo	Romania Bulgaria
		Uni Aarhus	embargo	Romania Bulgaria
		Uni Oulu		Romania
		Uni Helsinki		Romania
		Polish Ada Group	embargo	Poland Ukraine
		NIEP		Moldova
		IRSM CAS CZ	embargo	Romania
LMU	Z6	MOBNET IG CAS CZ	embargo	Slovakia Czech Republic
		Kiel	embargo	Germany Austria Hungary
		EPSS Hungary	embargo	Hungary
		LMU	embargo	Albania Montenegro Kosovo
		Montenegro pool	embargo	Montenegro
		KIT		Albania
		Kosovo pool	embargo	Kosovo
ODC	7B	UniWien	open	Austria Slovakia
		Croatian Seism. Survey	open	Croatia
Bergen	9H	Uni Zagreb+Norwegian Pool	embargo	Croatia BiH
ETH	Y5	ETH	open	BiH
INGV	2Y	OGS	embargo	Italy
	?	INGV Bologna		Italy
		Uni Twente		Italy
		Barcelona		Italy
RESIF	?	Resif-Sismob	open	France

_ADARRAY

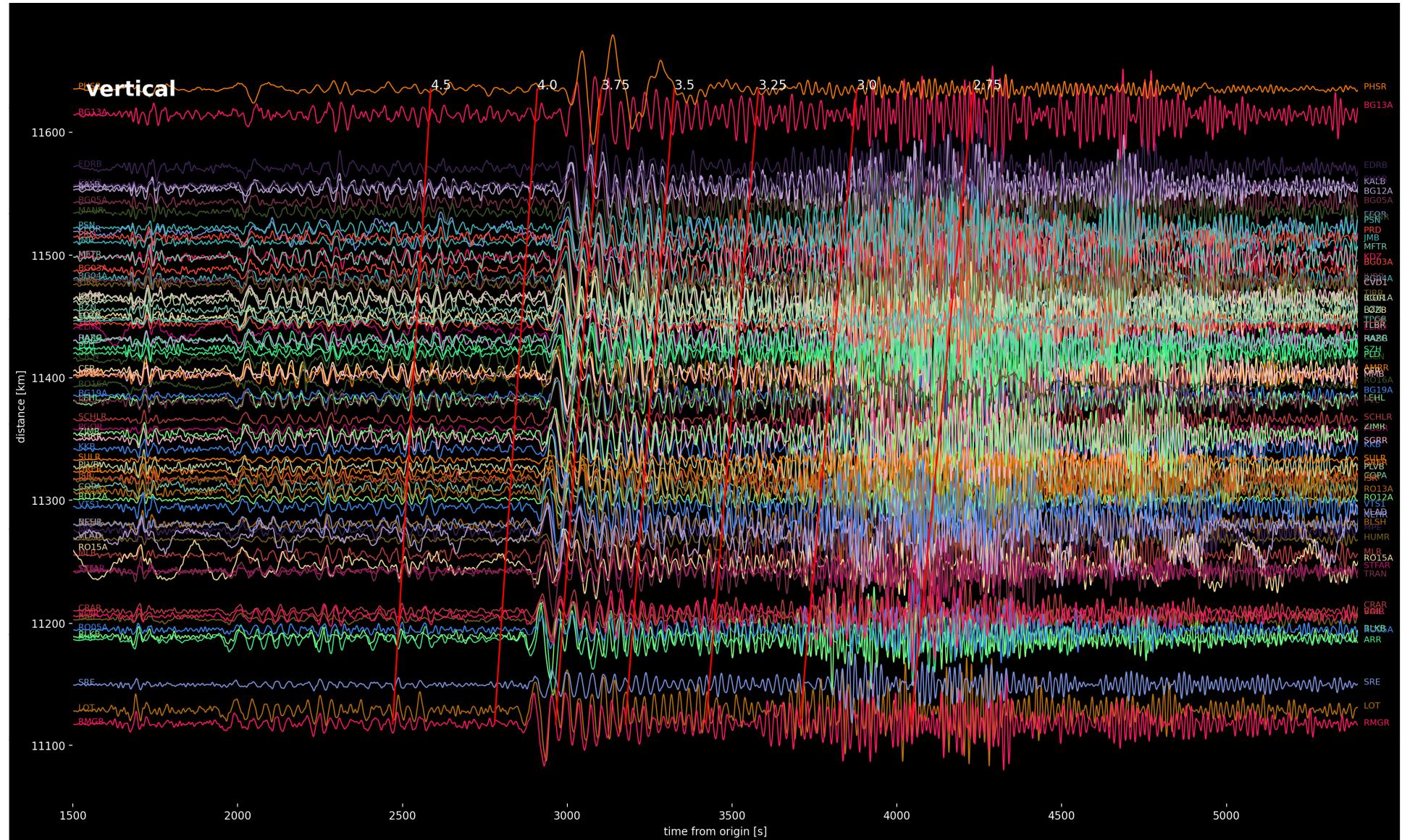
permanent networks
included in the moment

temporary to be added soon
(Greece already in)

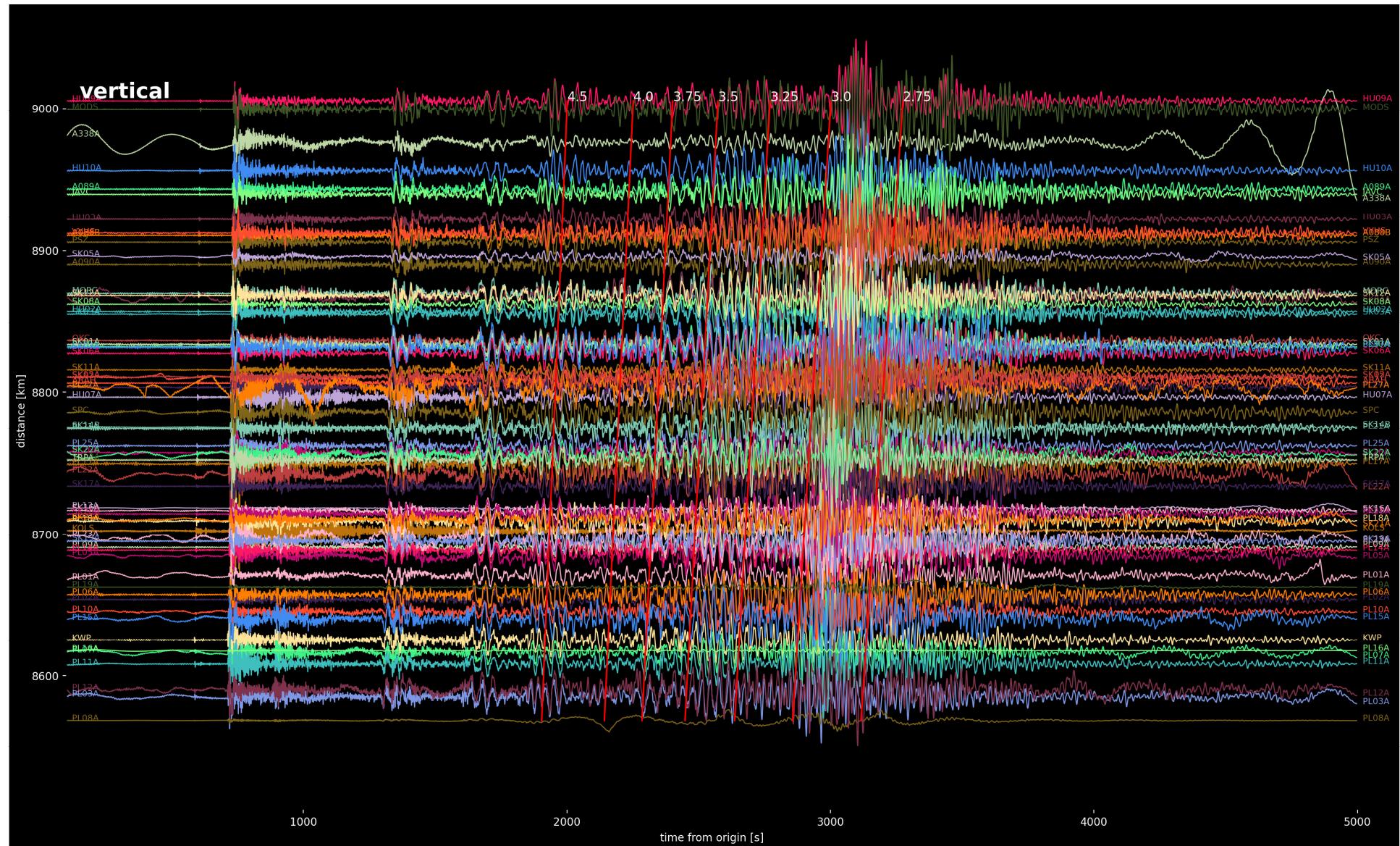
by
Johannes
Stampa



Mexico, 2022-09-19, M=7.6, 10 – 200 s, stations in Romania + Bulgaria

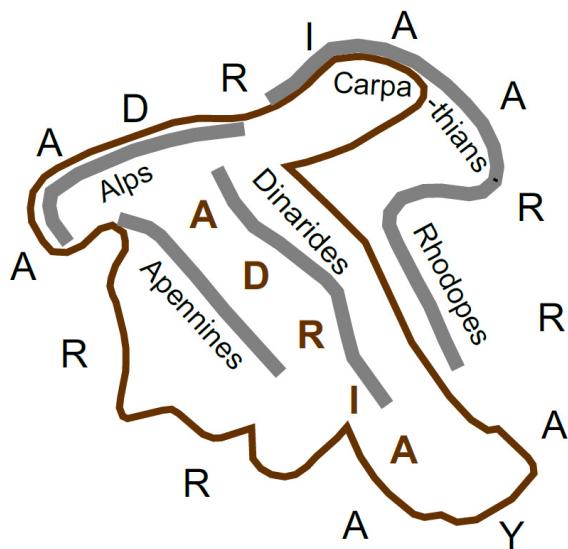


Japan, 2022-03-16, M=7.3, stations in Slovakia, Poland, Hungary, CZ, Austria





various version of the logo by Hanka and Matteo, with support of Jarka



AdA logo by Jarka



AdA logo by Thomas

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.

petr.kolinsky@ig.cas.cz

Thanks to Orfeus + Epos for supporting AdriaArray.



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