



UNITED NATIONS
UNIVERSITY

GEOHERMAL TRAINING PROGRAMME
Orkustofnun, Grensasvegur 9,
IS-108 Reykjavik, Iceland

Reports 2011
Number 26

**APPENDICES TO THE REPORT:
RESISTIVITY STRUCTURE OF
PAKA GEOTHERMAL PROSPECT IN KENYA**

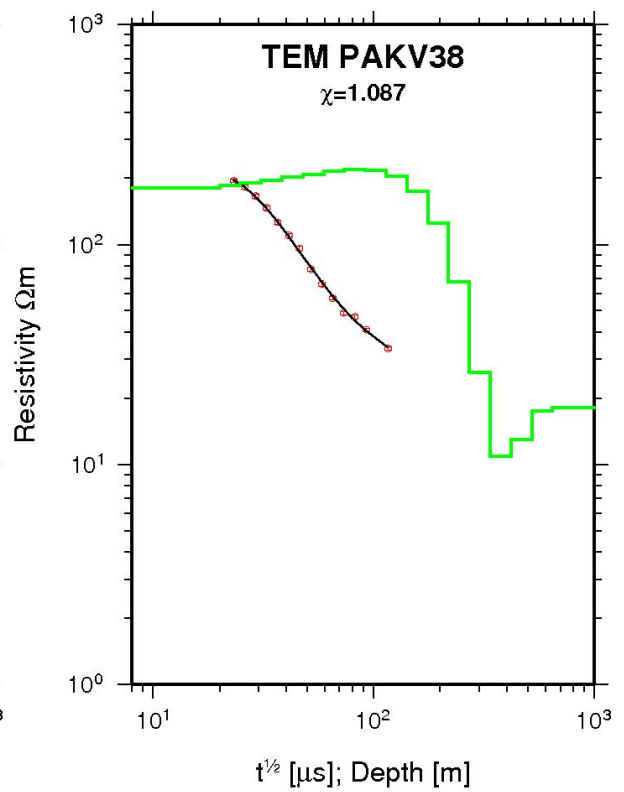
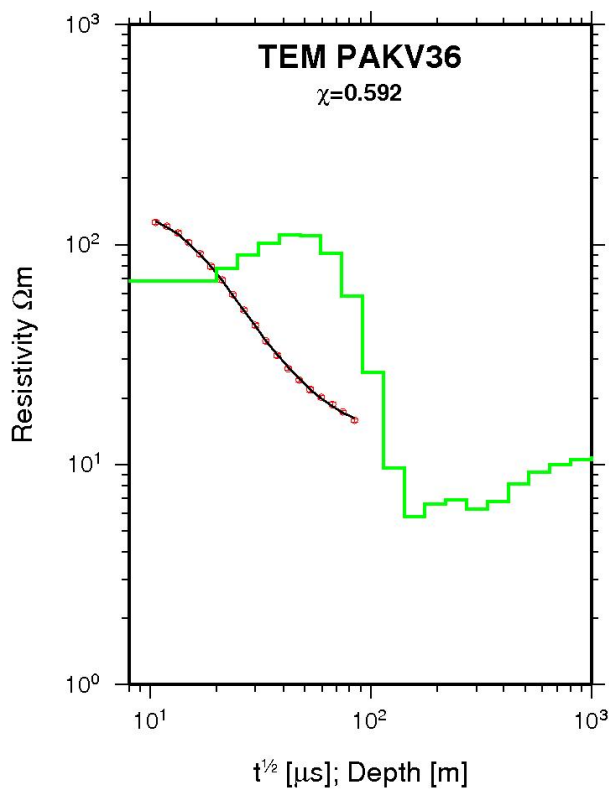
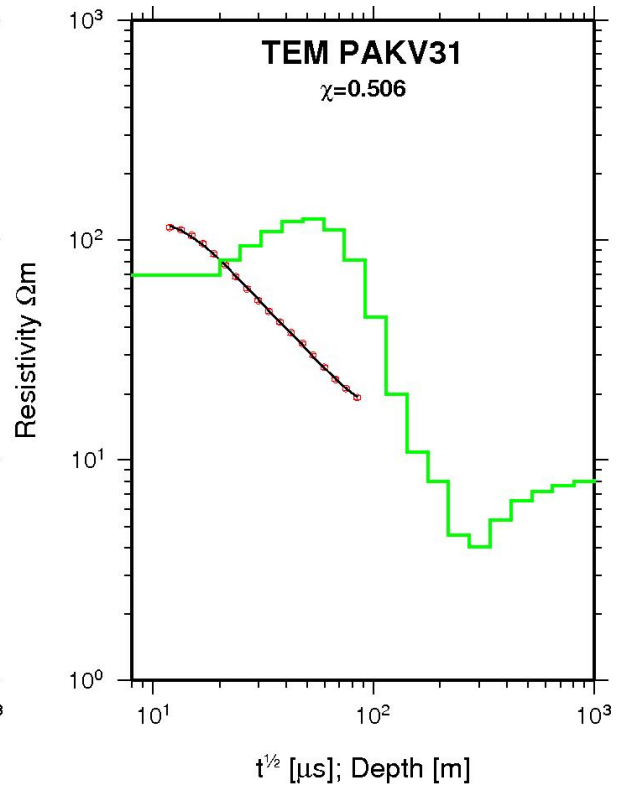
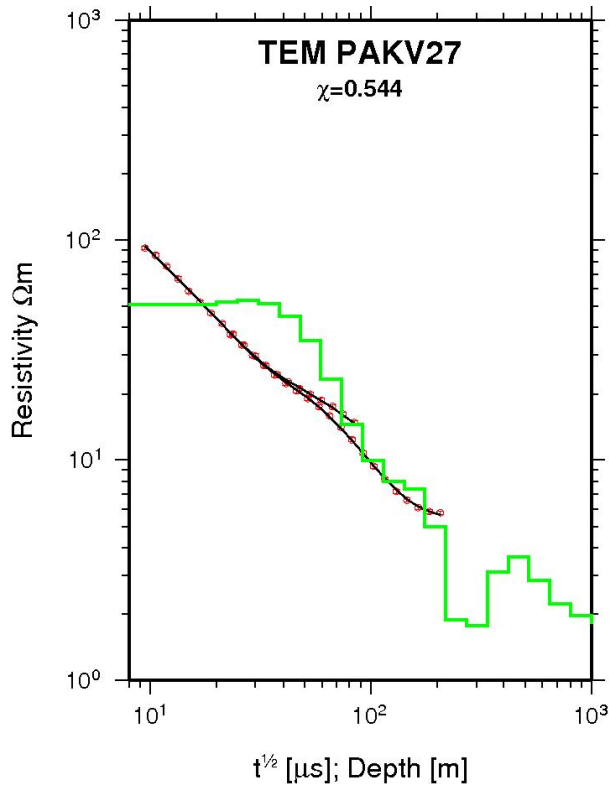
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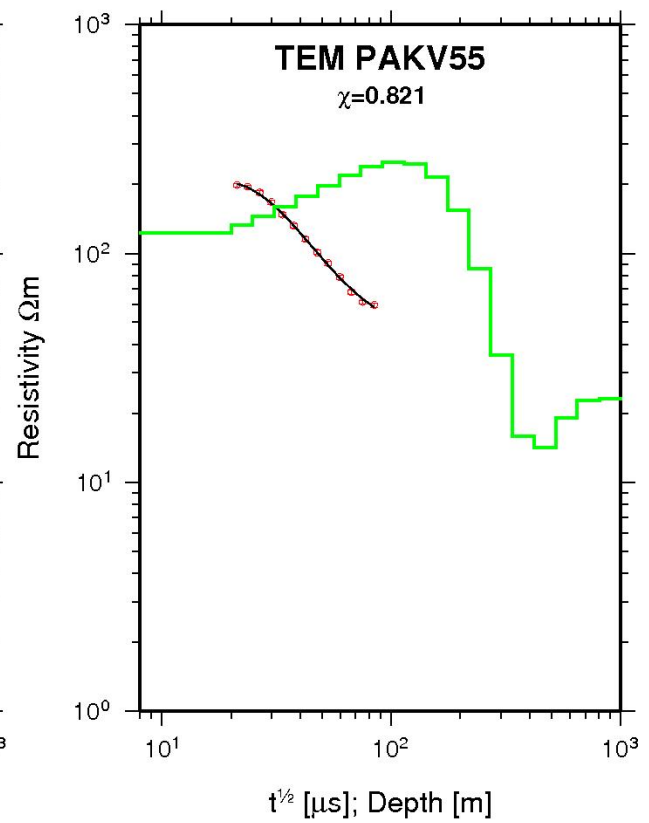
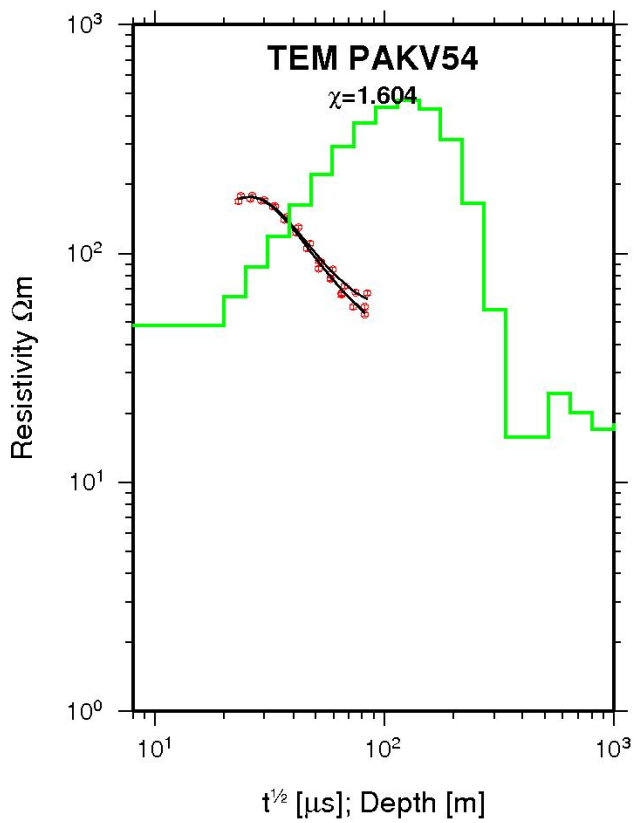
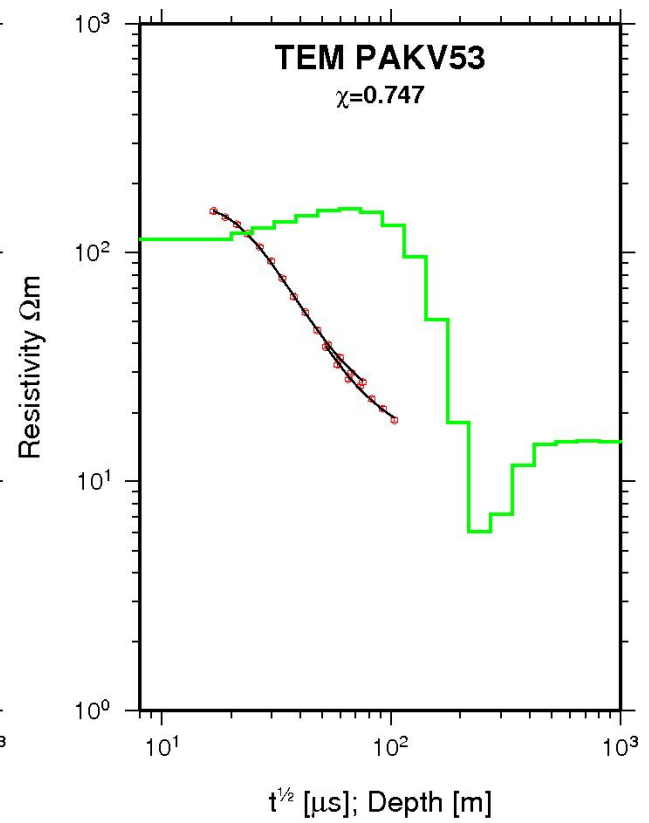
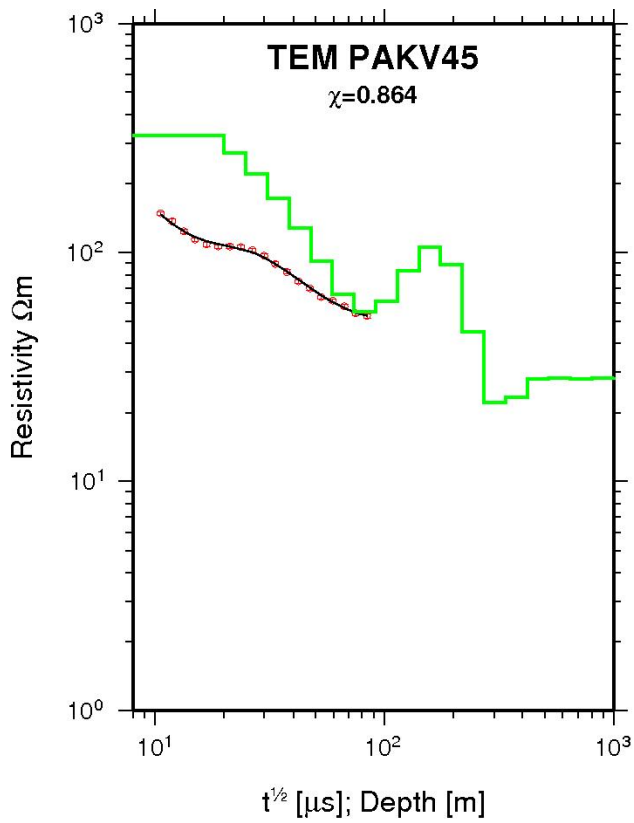
Raymond M. Mwakirani
Geothermal Development Company Ltd
P.O BOX 17700-20100
Nakuru
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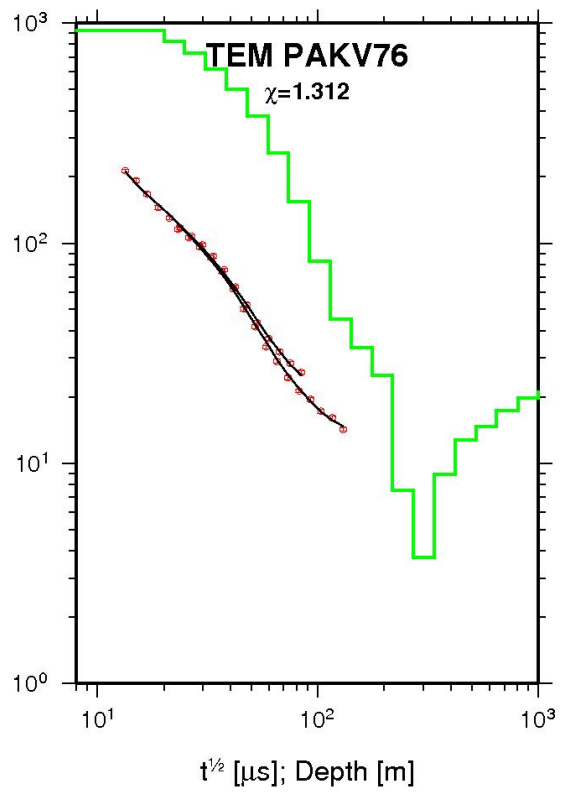
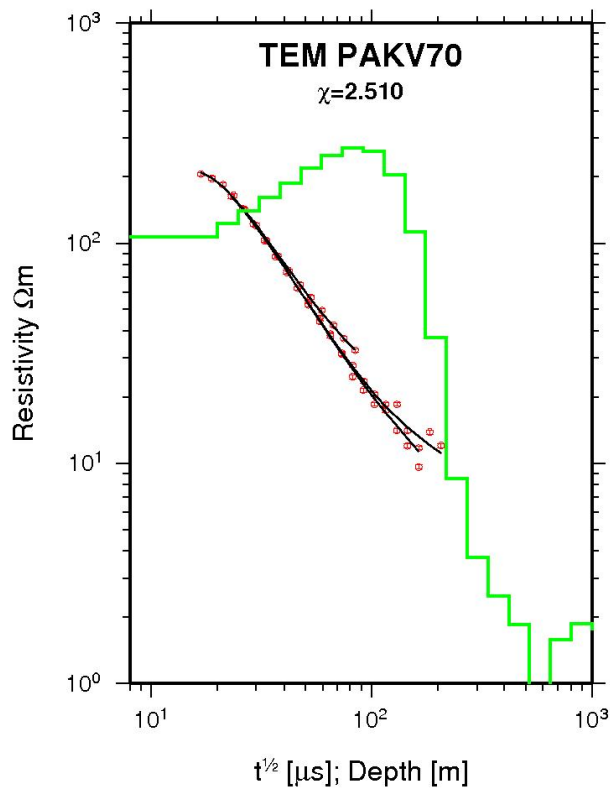
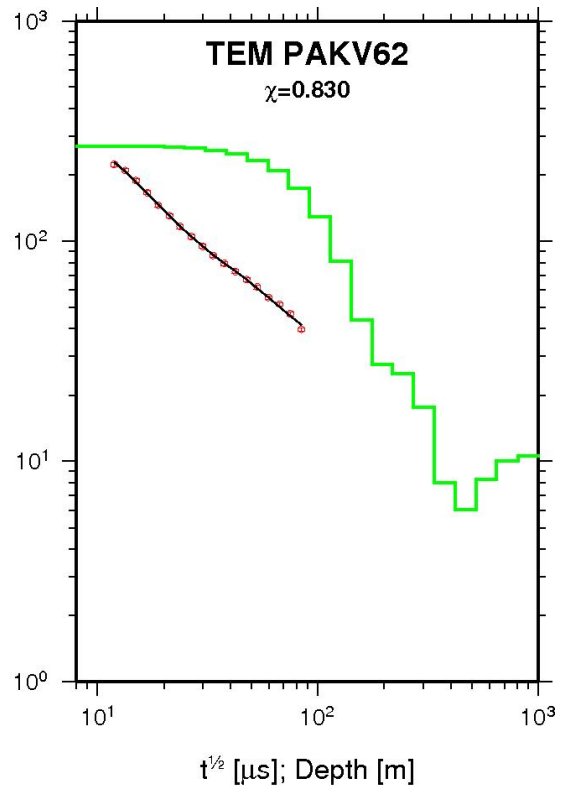
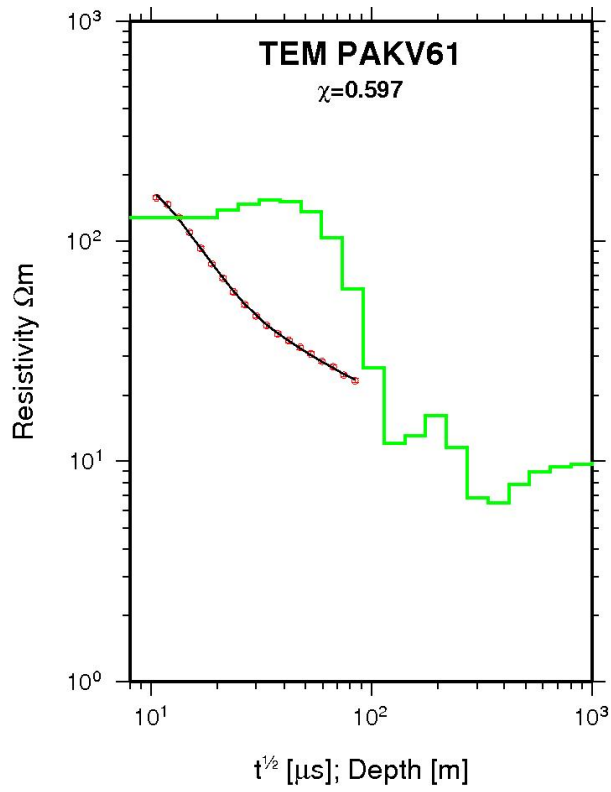
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Geothermal Training Programme
Reykjavík, Iceland
Published in 2011

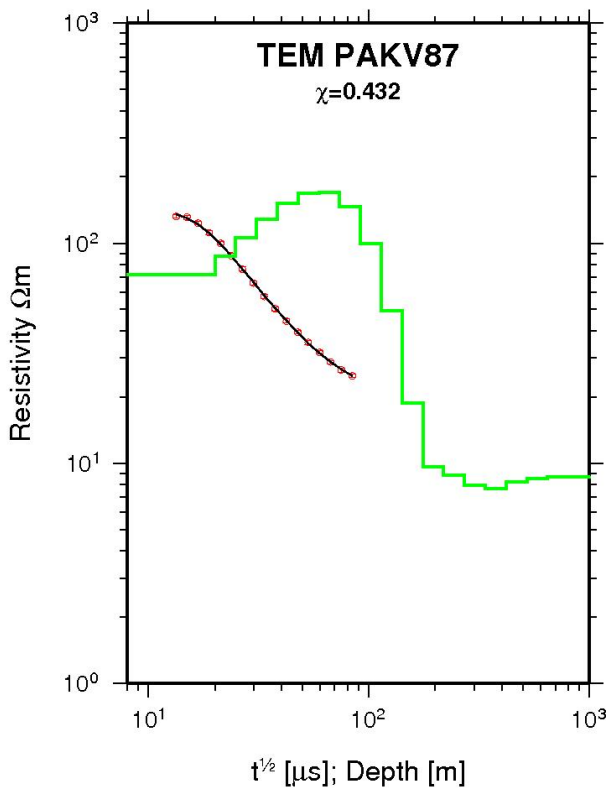
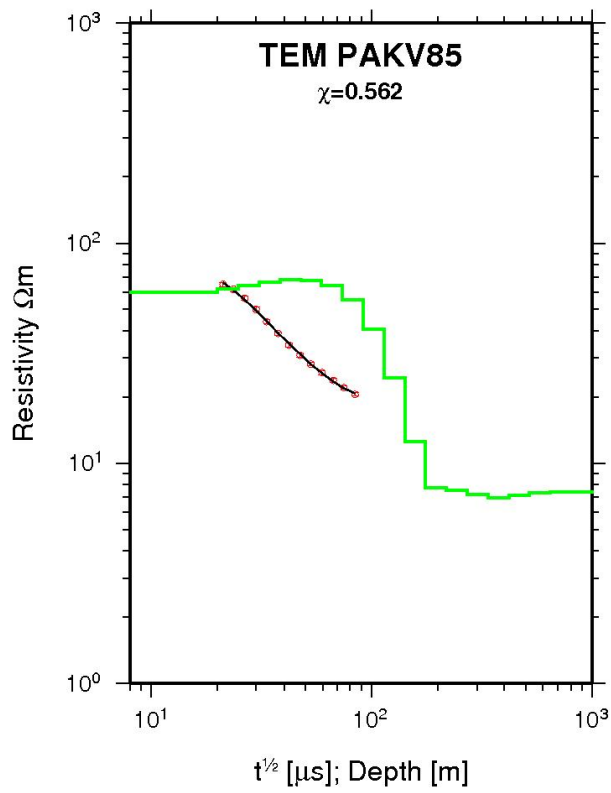
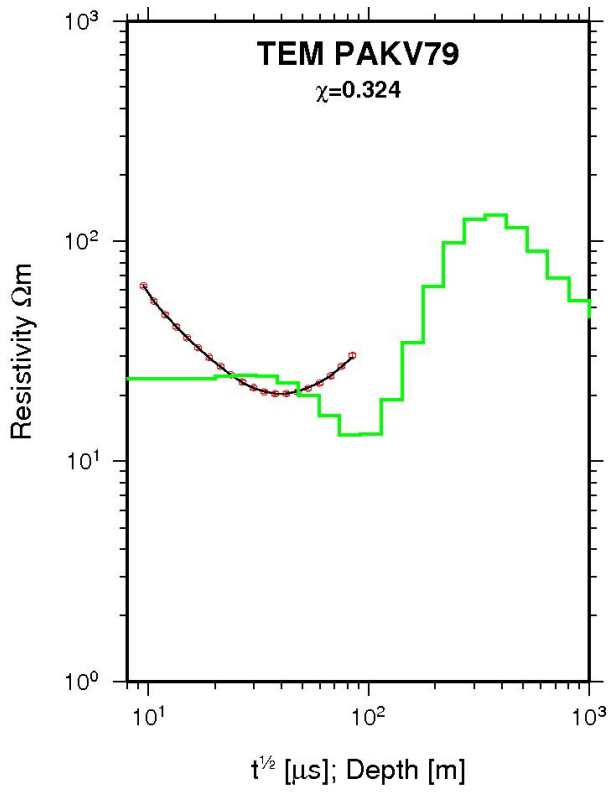
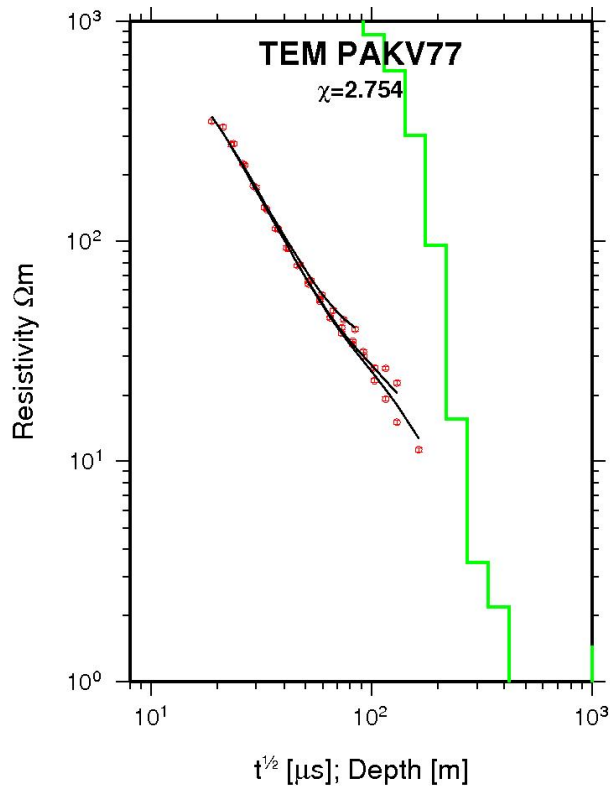
These are appendices to the report “Resistivity Structure of Paka geothermal prospect in Kenya” by Raymond M. Mwakirani at the UNU Geothermal Training Programme in 2011. Appendix I shows the TEM profiles from the Paka prospect and Occam inversion of the resistivity data. Appendix II shows processed data for all the MT soundings with various MT parameters extracted from the EDI files. Appendix III shows the TEM and MT resistivity data from the Paka prospect and 1-D joint inversion of the MT and TEM profiles and the corresponding model curves. Appendix IV contains additional iso-resistivity maps from the Paka prospect to ones shown in the main report. Appendix V shows additional resistivity cross-sections from the Paka prospect and their locations.

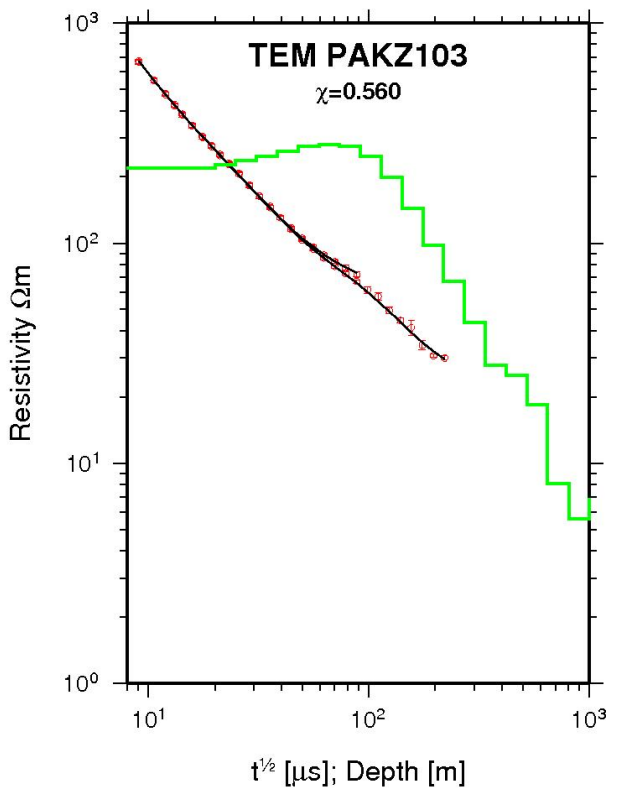
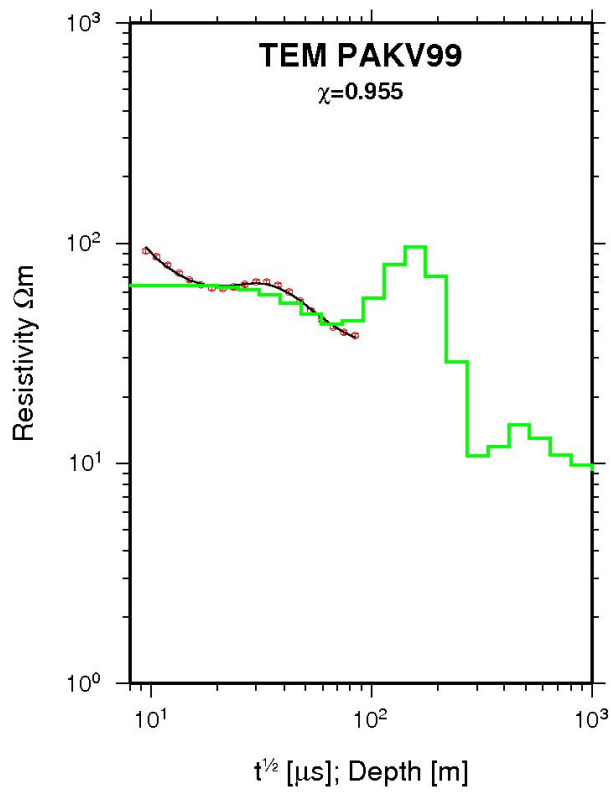
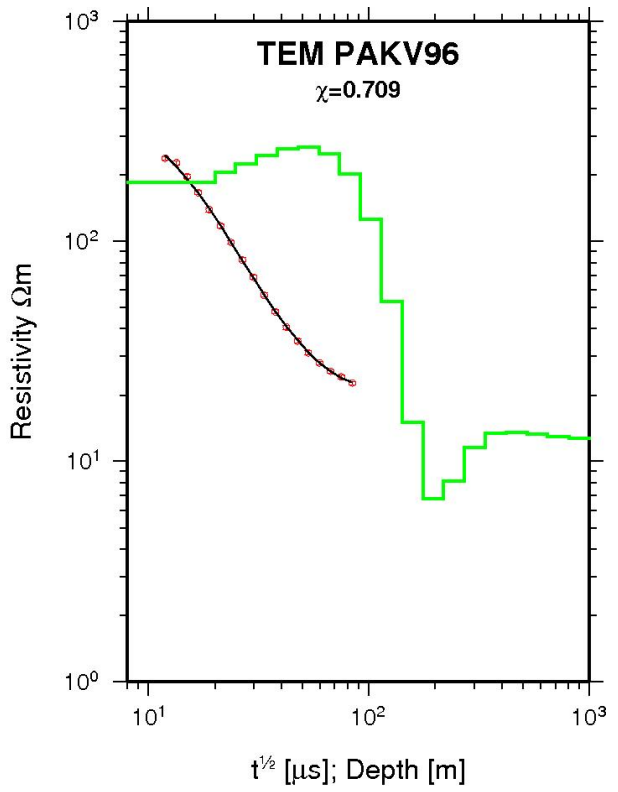
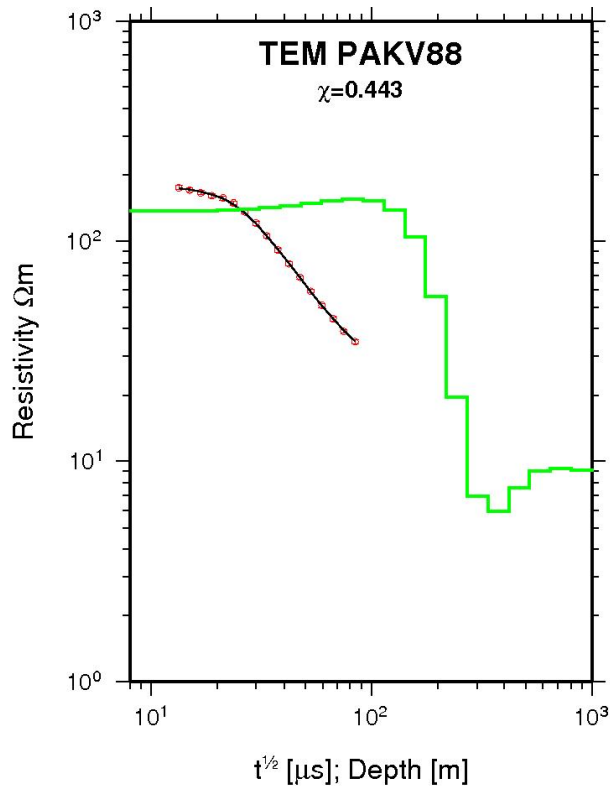
APPENDIX I: TEM profiles from the Paka prospect and Occam inversion of the resistivity data

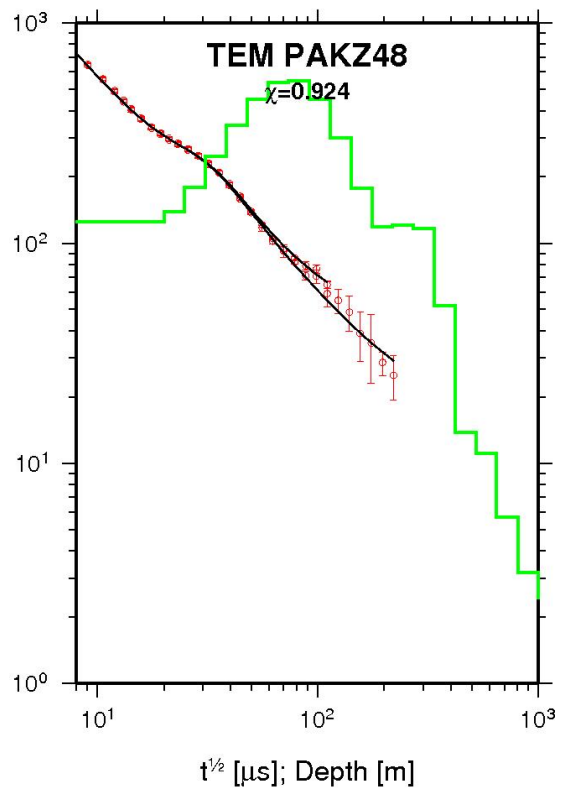
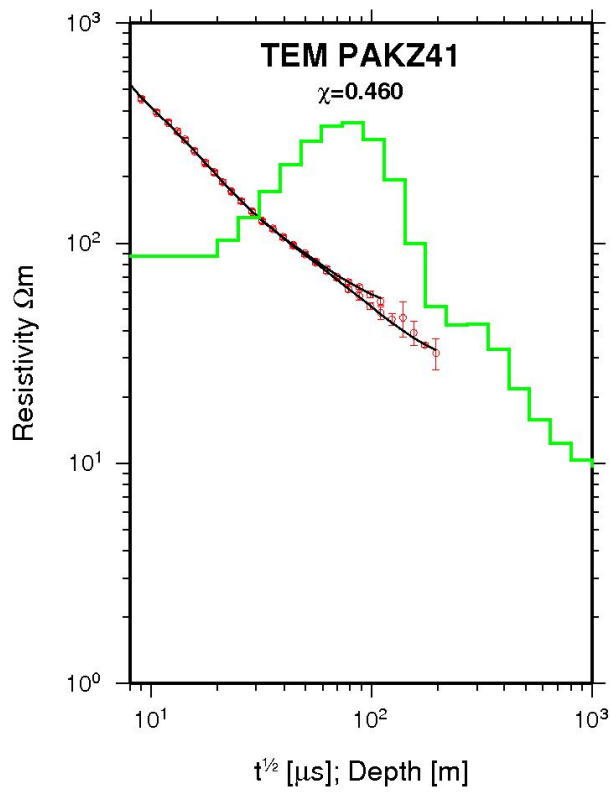
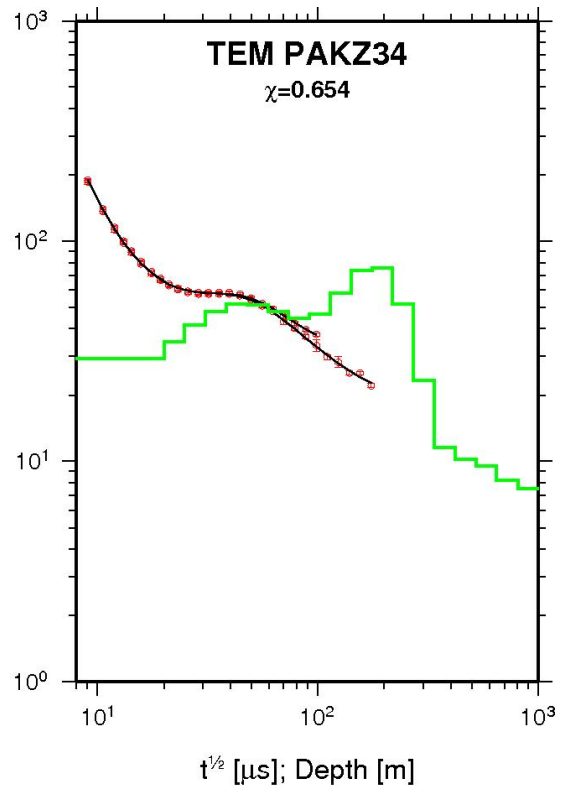
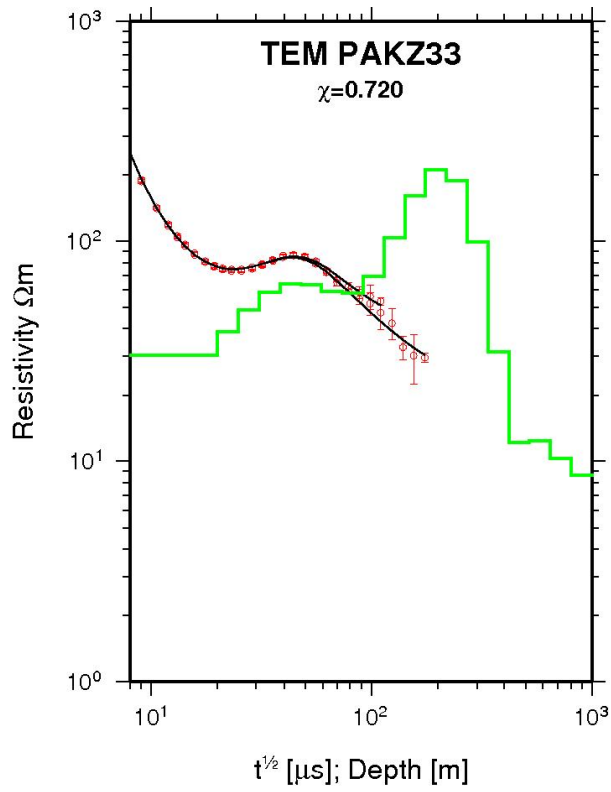


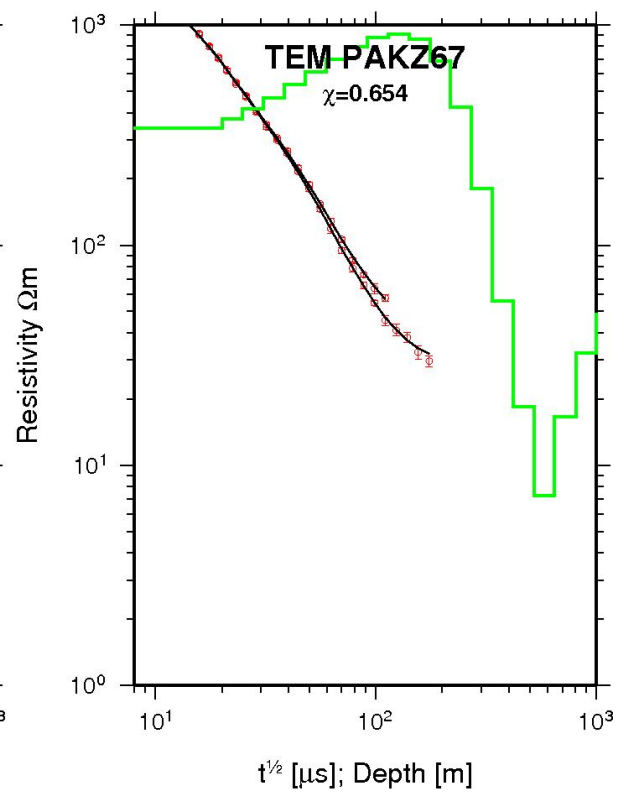
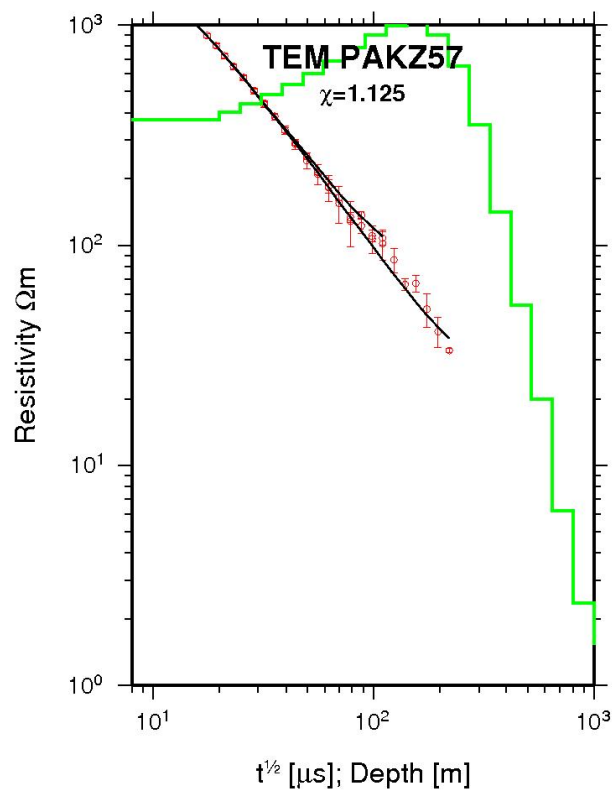
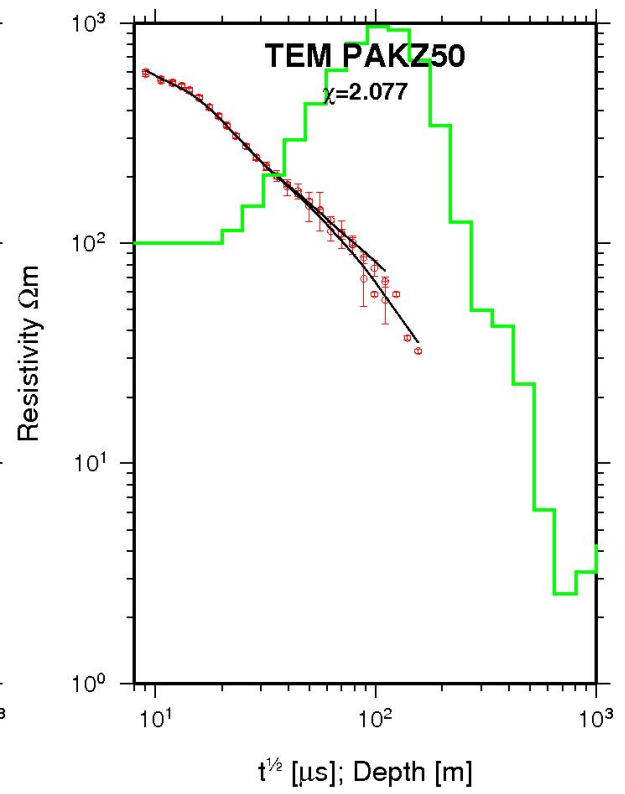
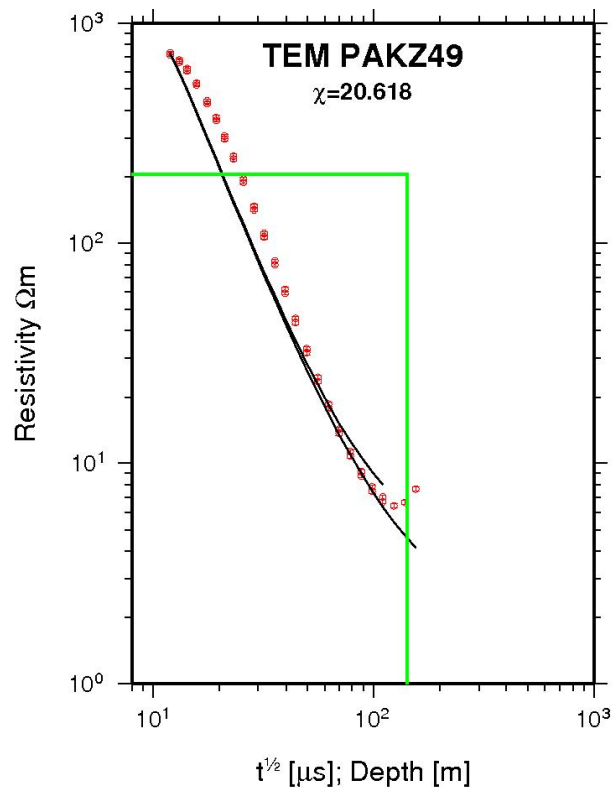


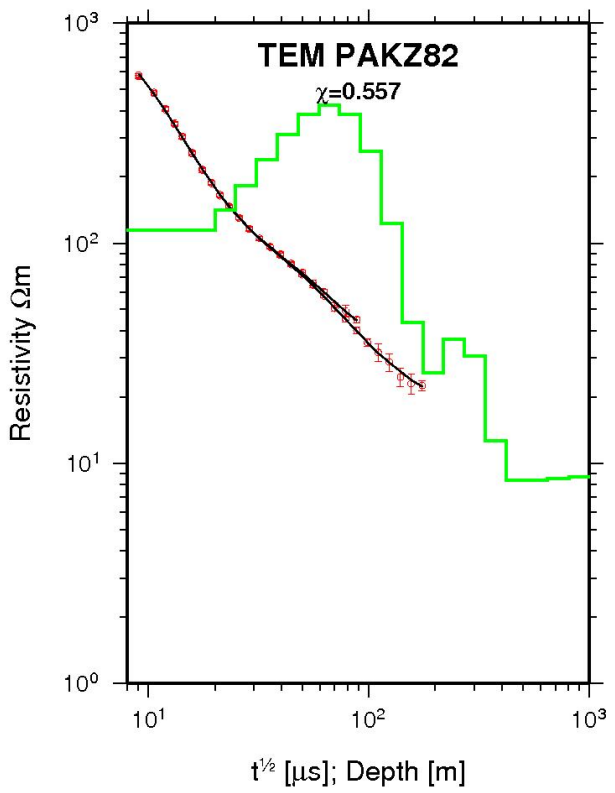
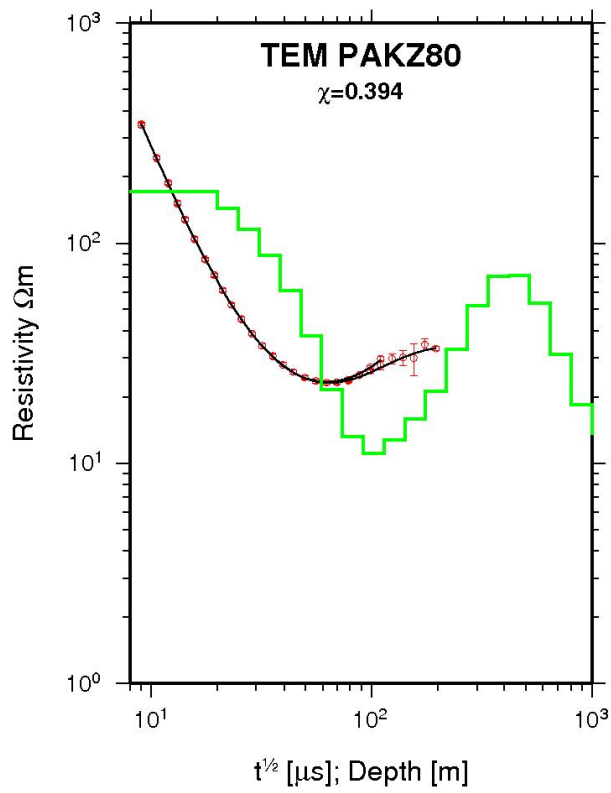
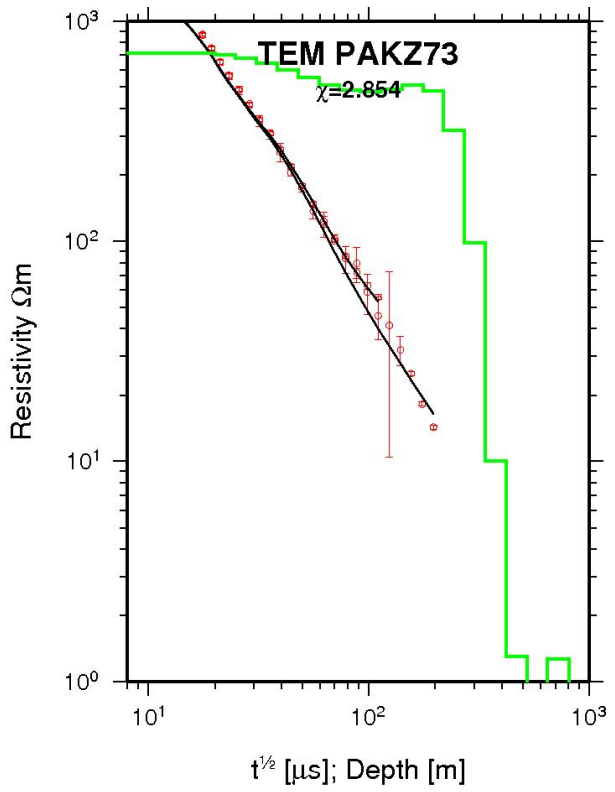
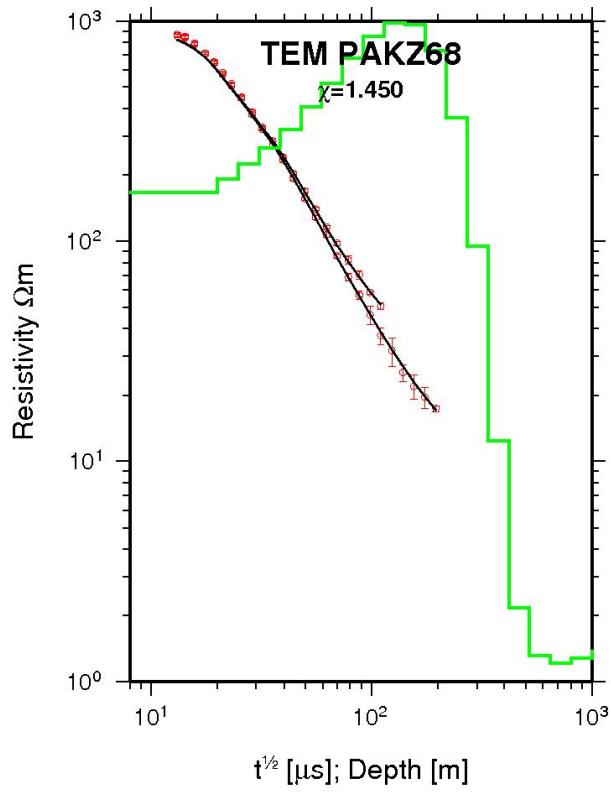


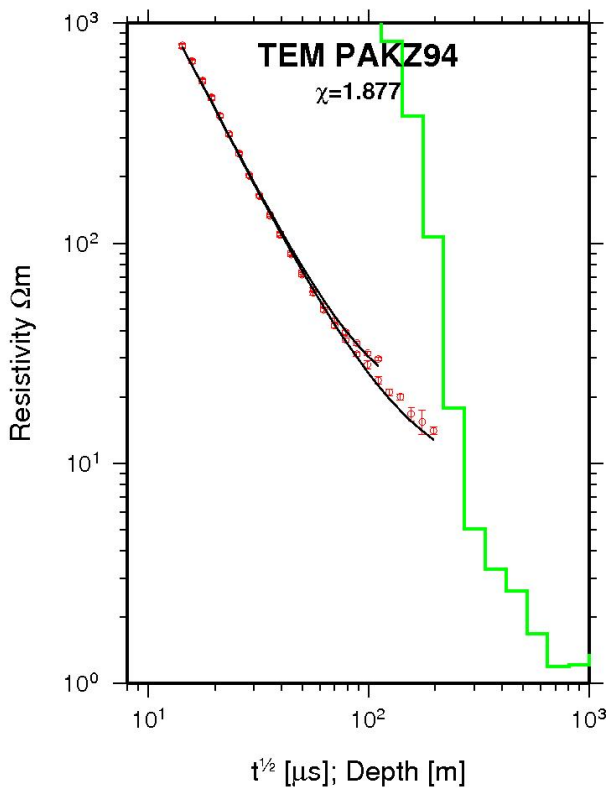
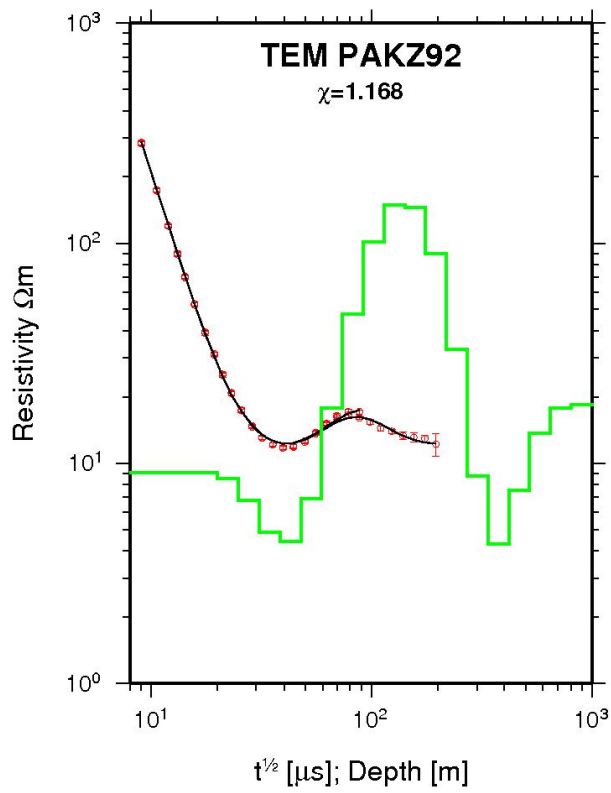
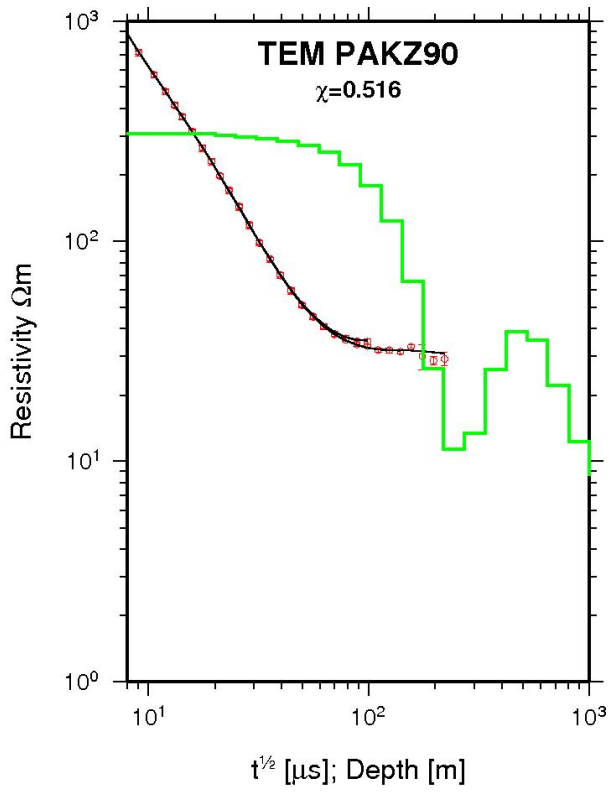
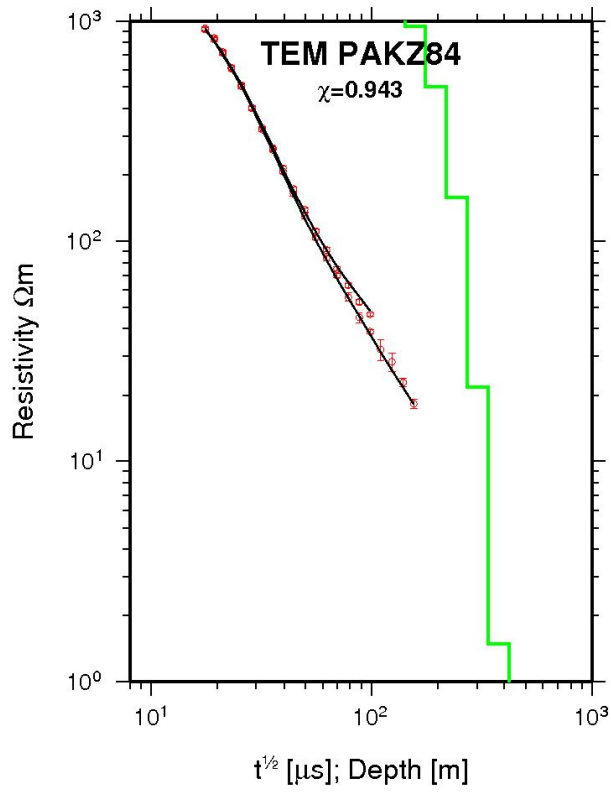


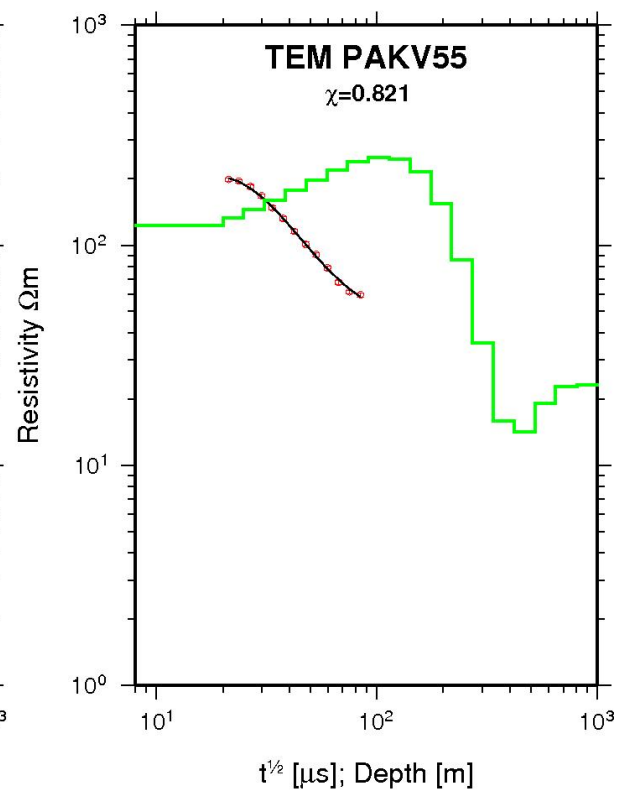
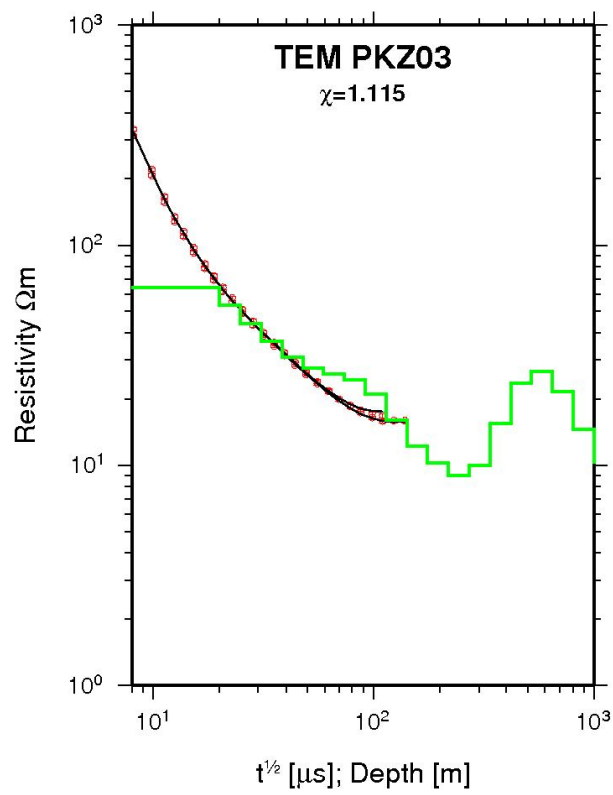
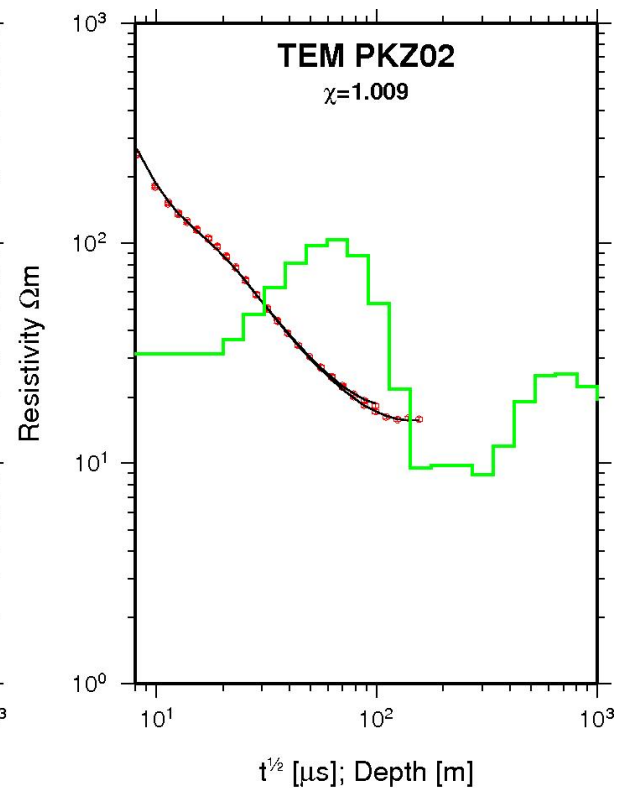
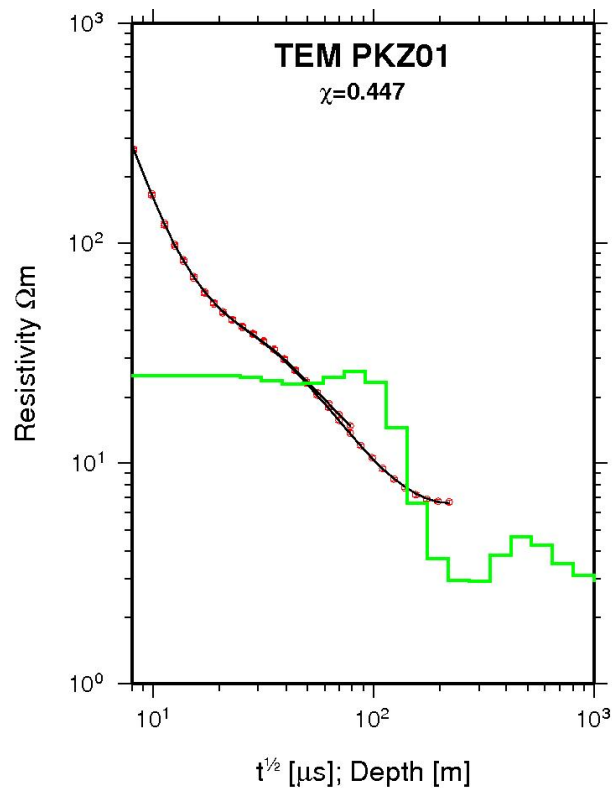


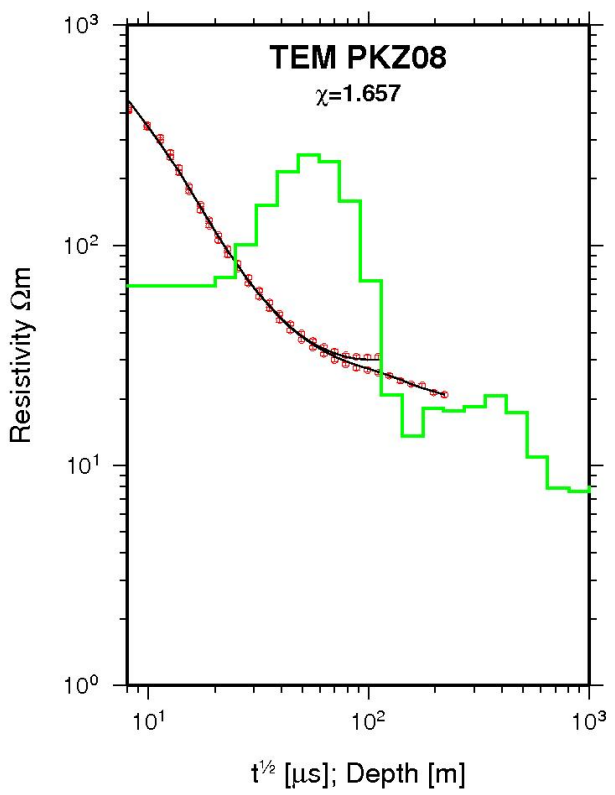
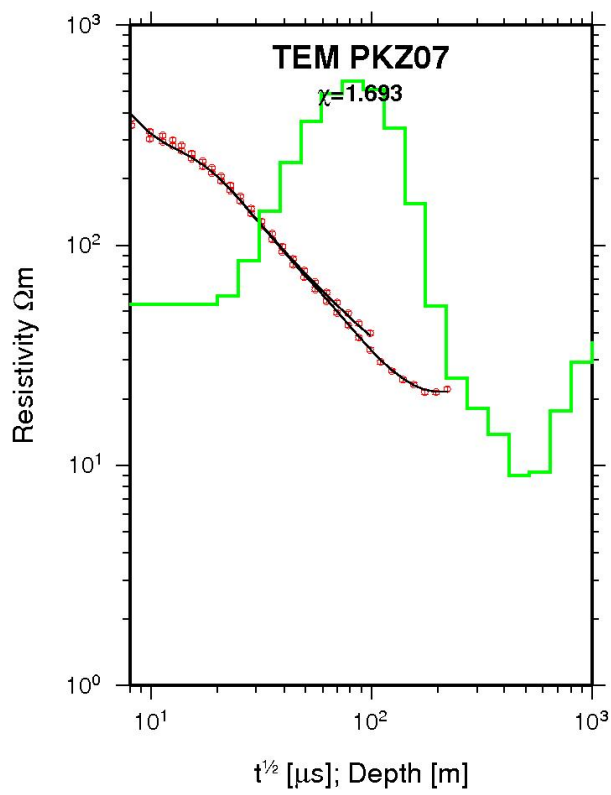
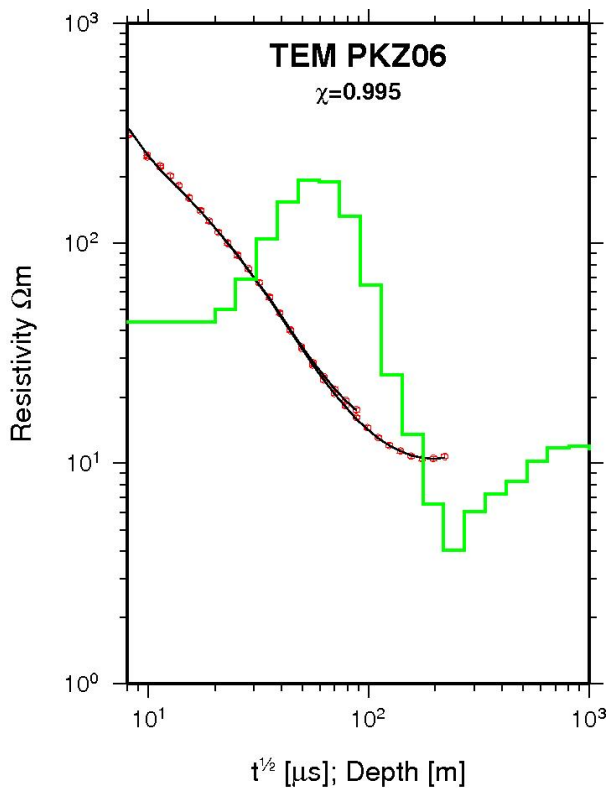
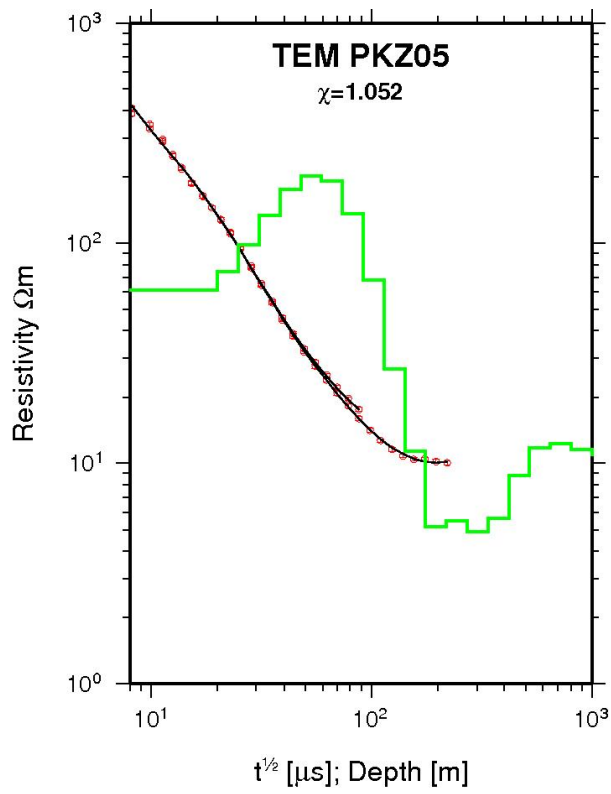


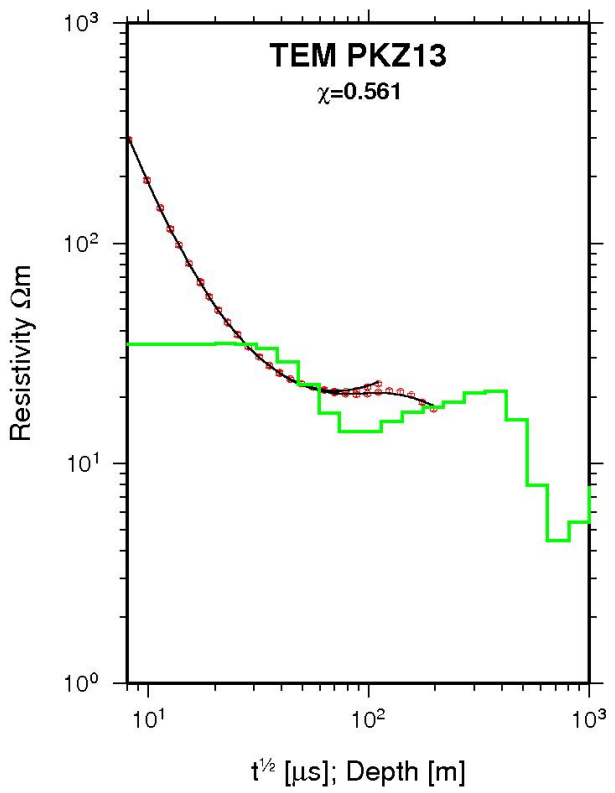
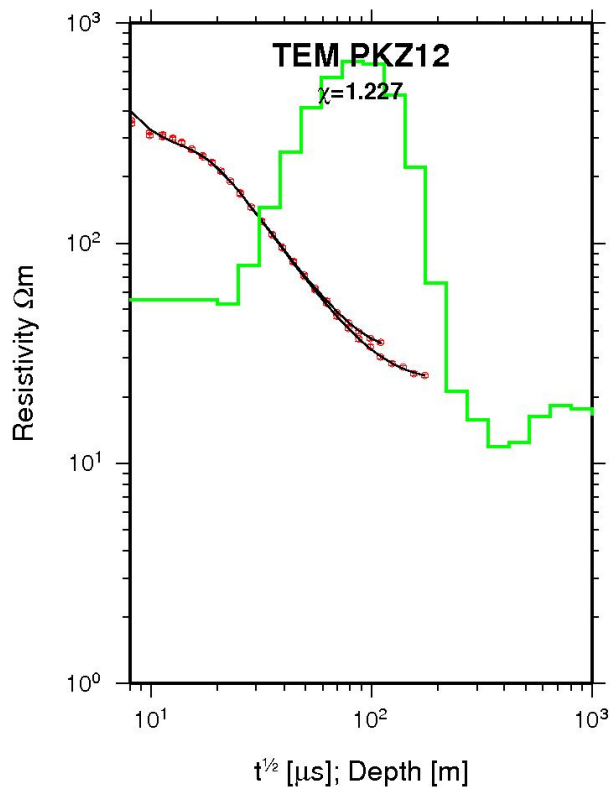
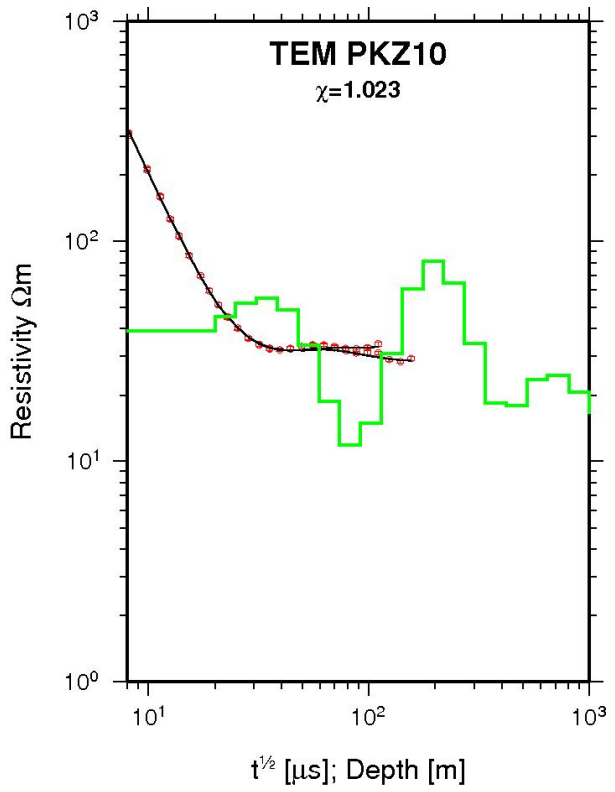
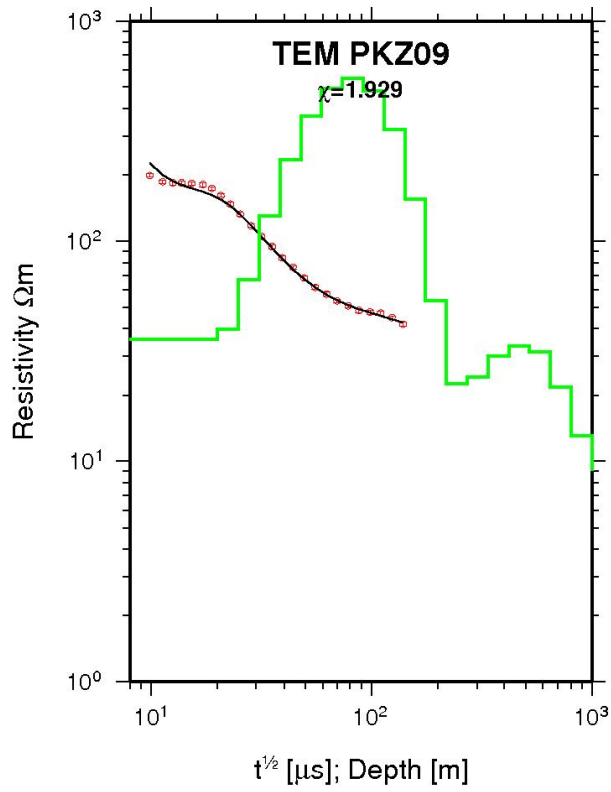


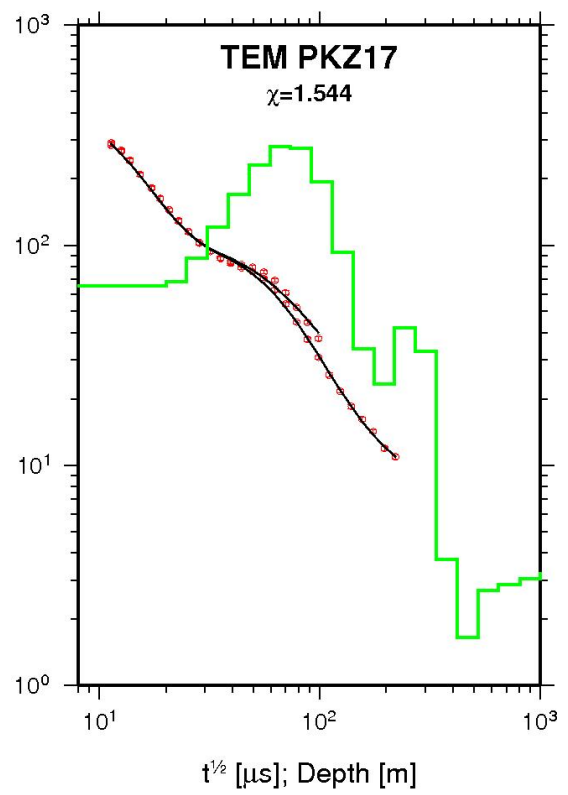
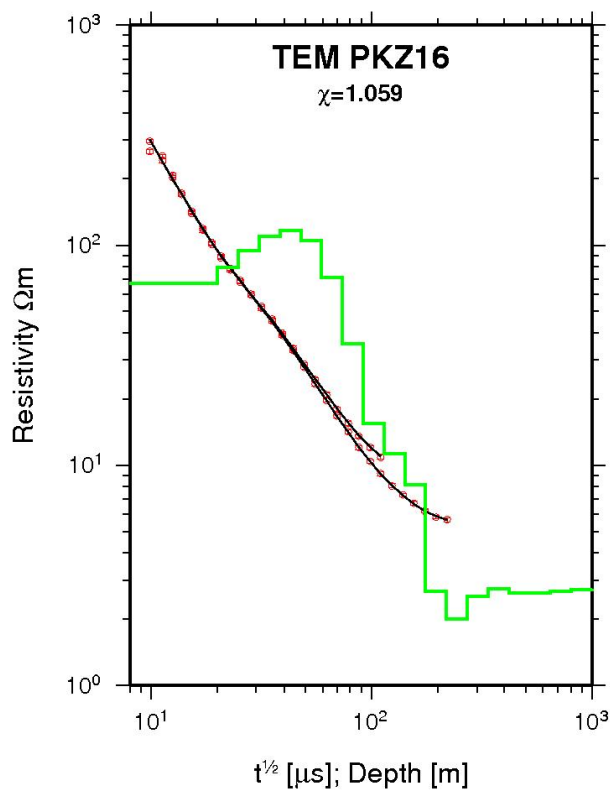
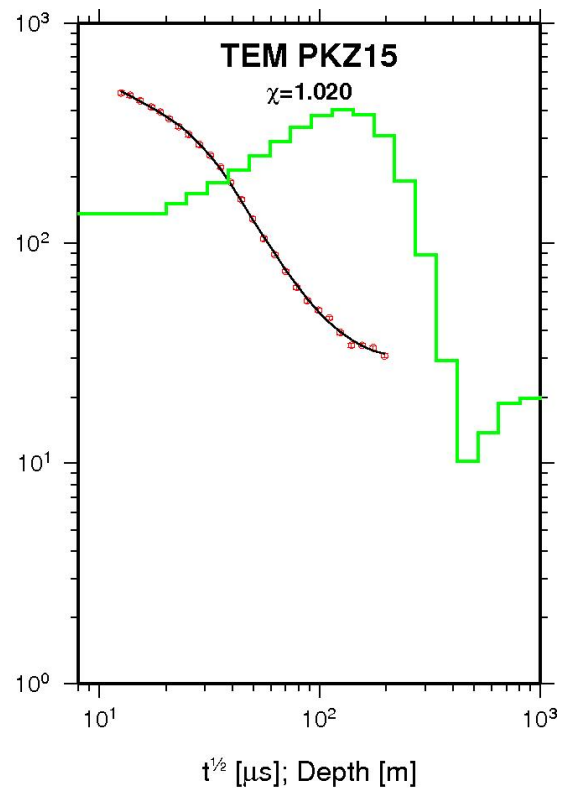
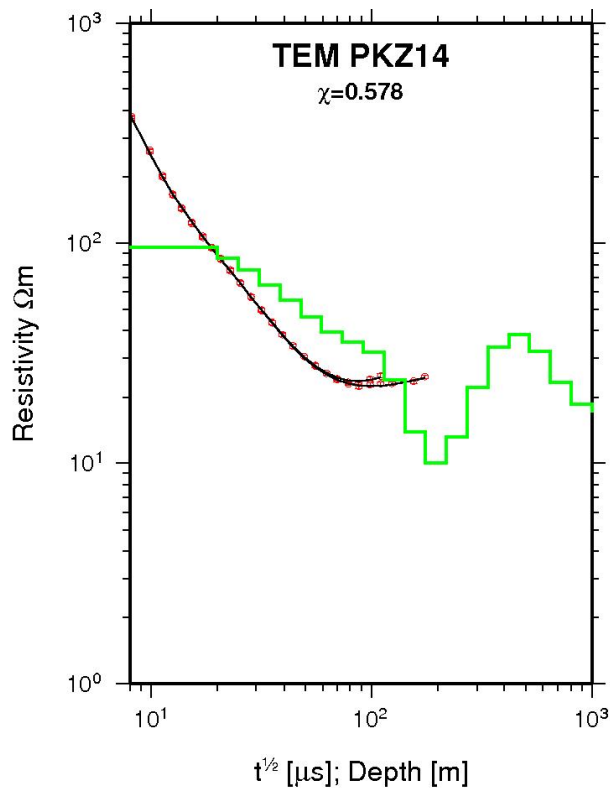


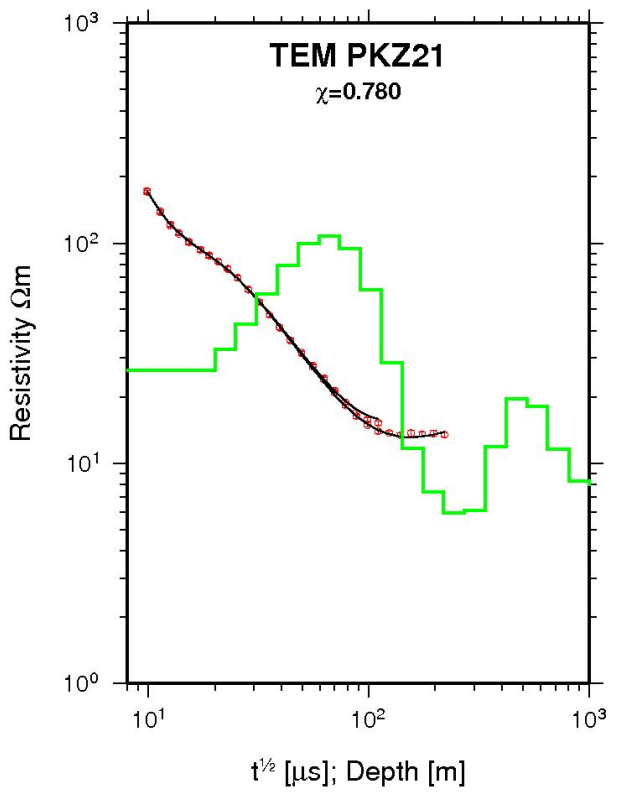
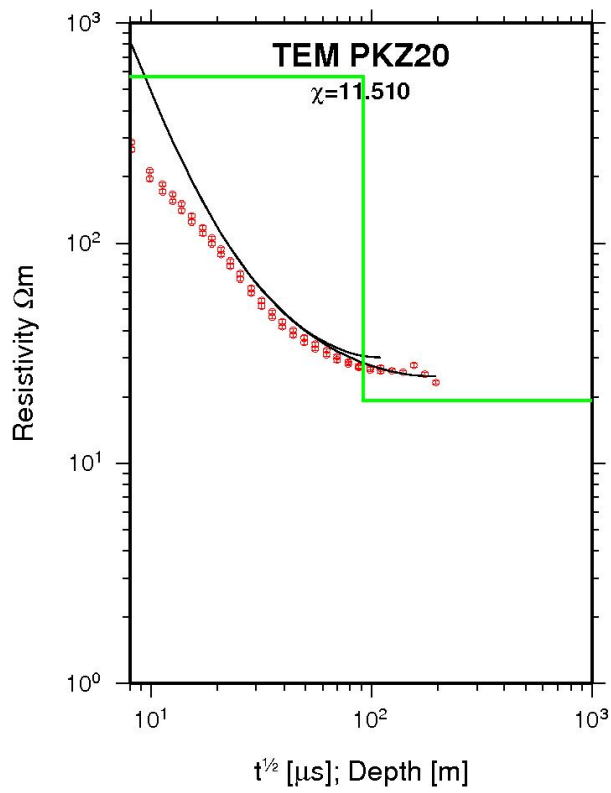
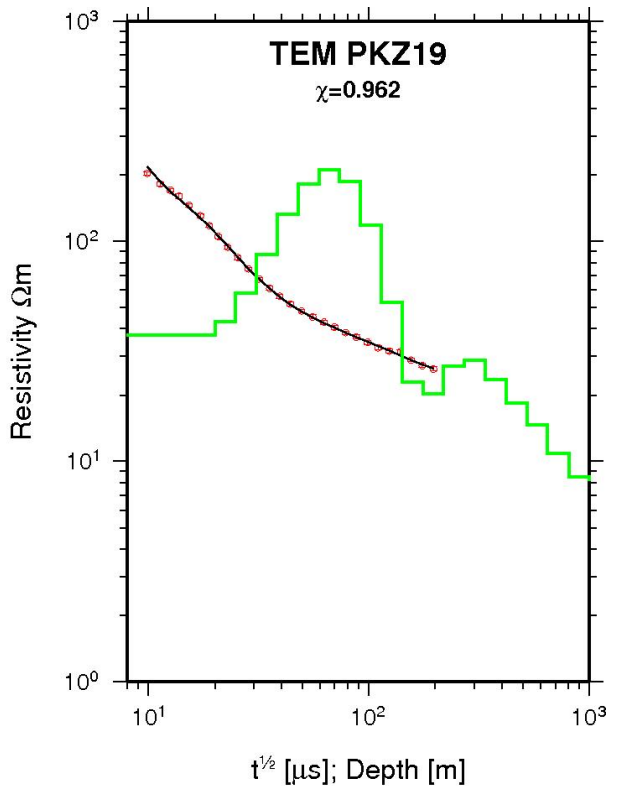
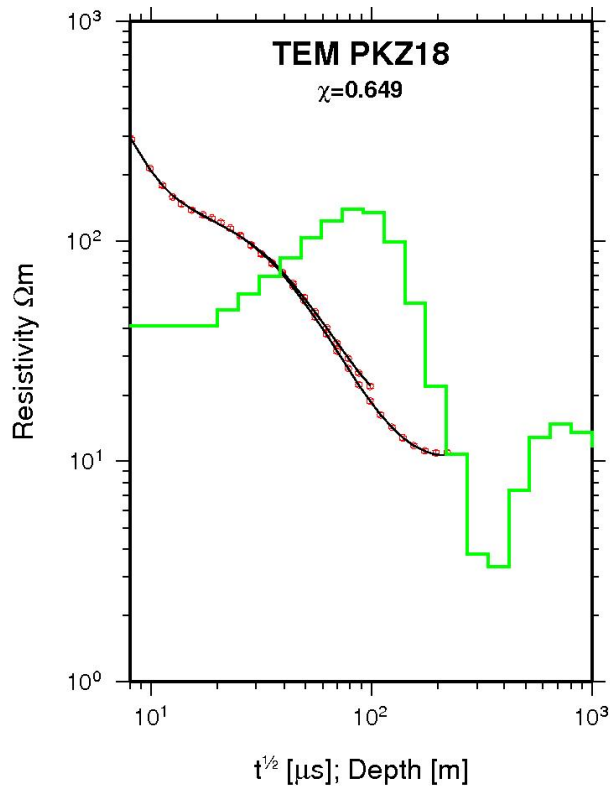


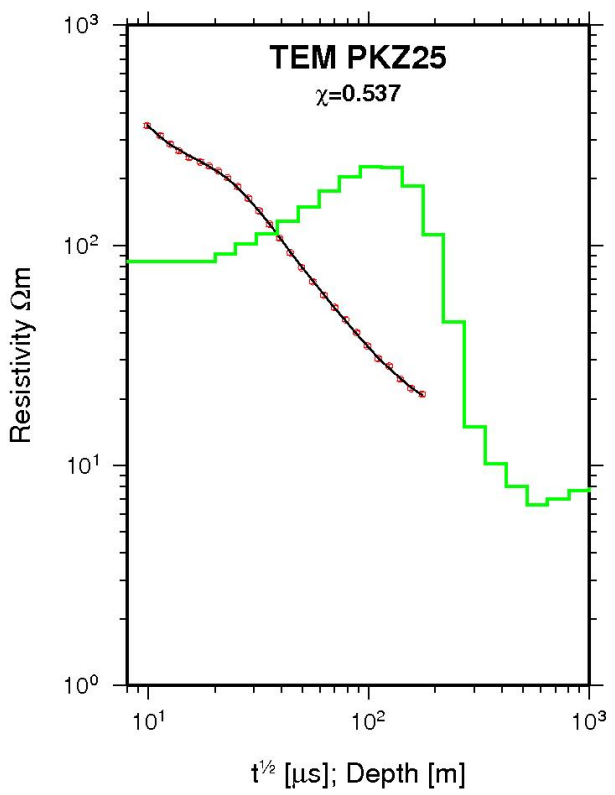
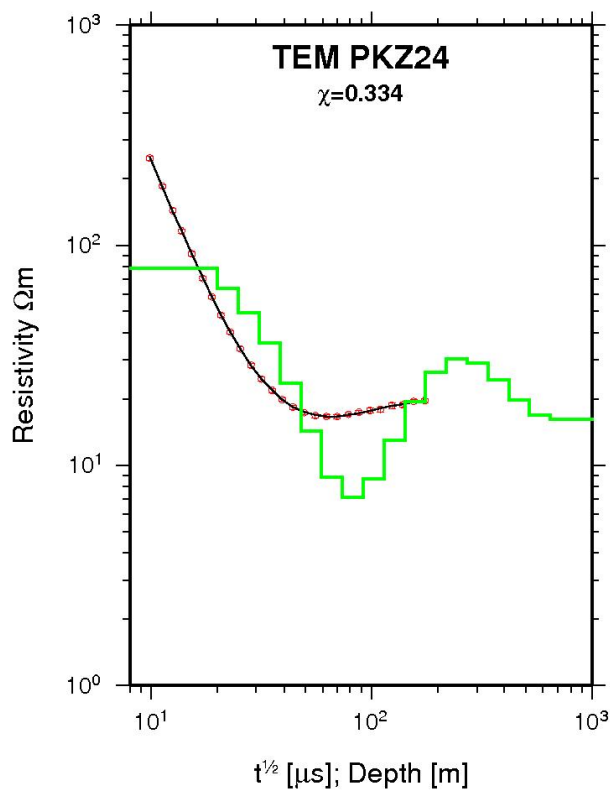
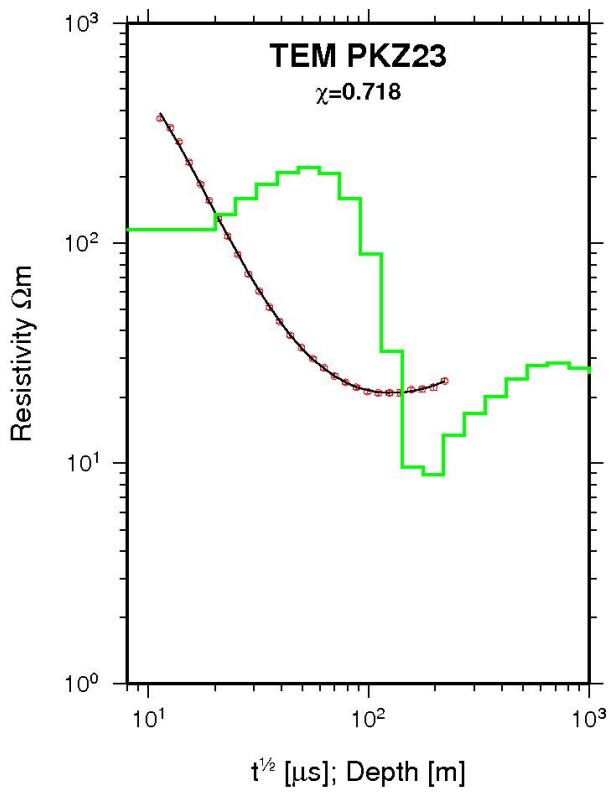
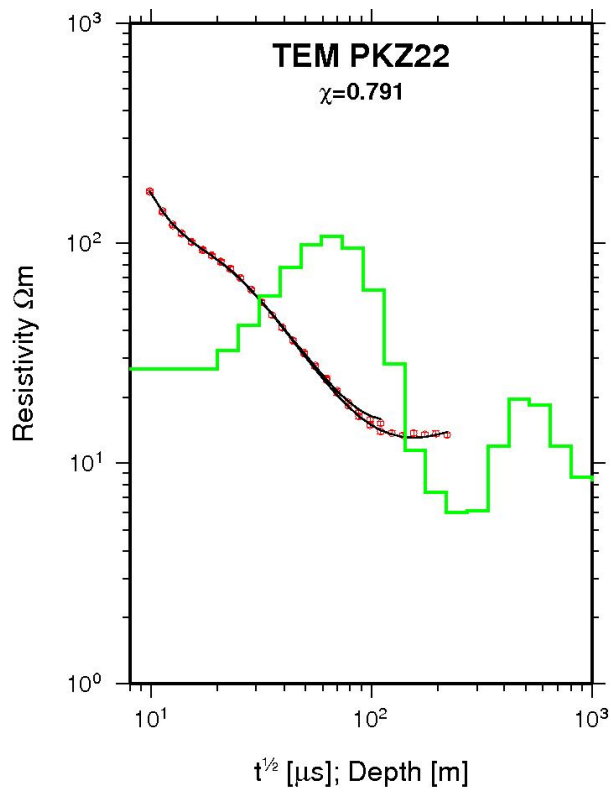








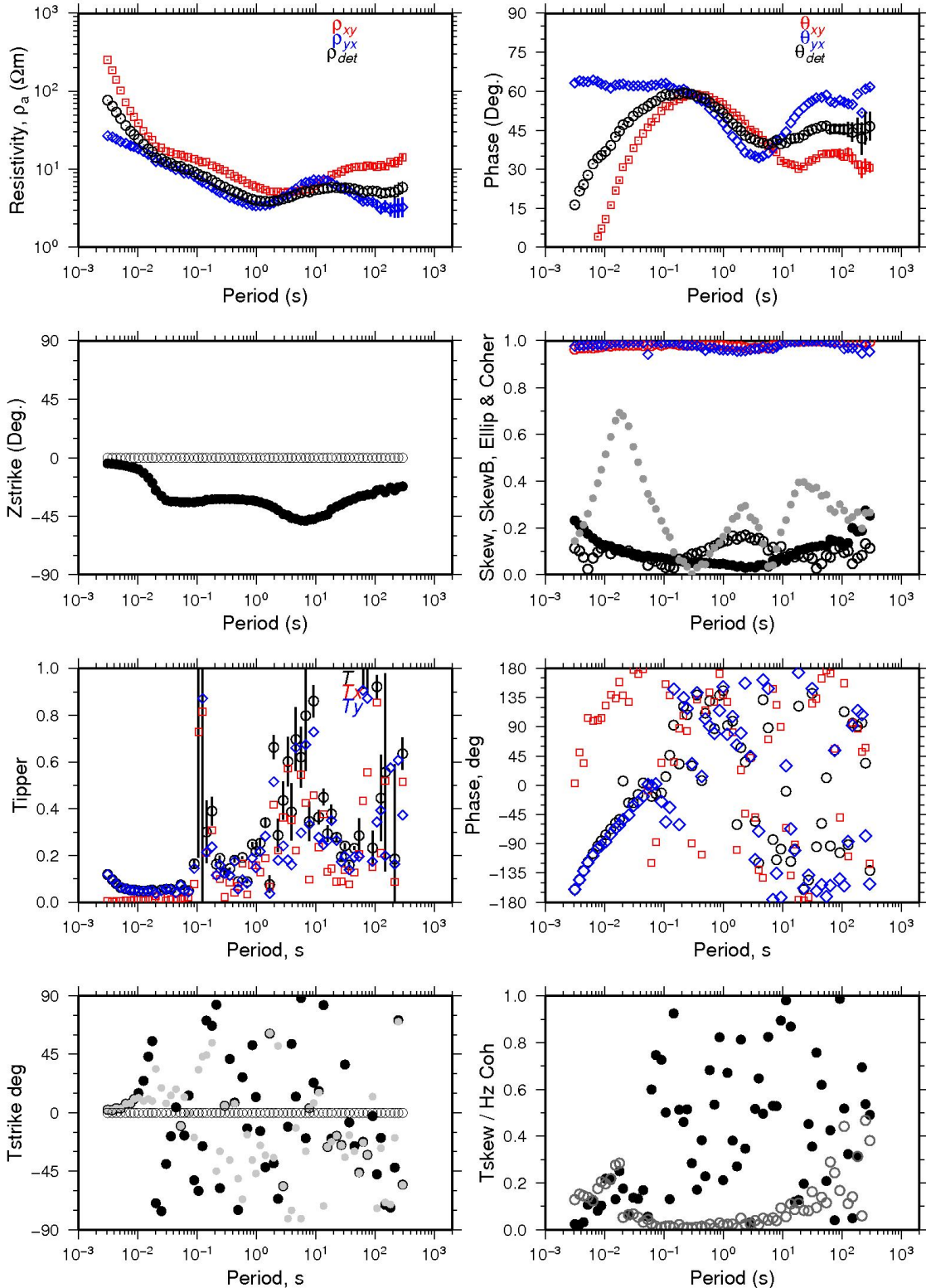




APPENDIX II: Processed data for all the MT soundings with various MT parameters extracted from the EDI file namely the apparent resistivity, and phase in the xy and yx directions plus the one calculated from determinant of the rotationally invariant tensor, electrical strike direction (Zstrike), coherency (measure of the data quality), skew (grey dots) is a measure of 2 dimensionality, tipper magnitude and ellipticity (open circles).

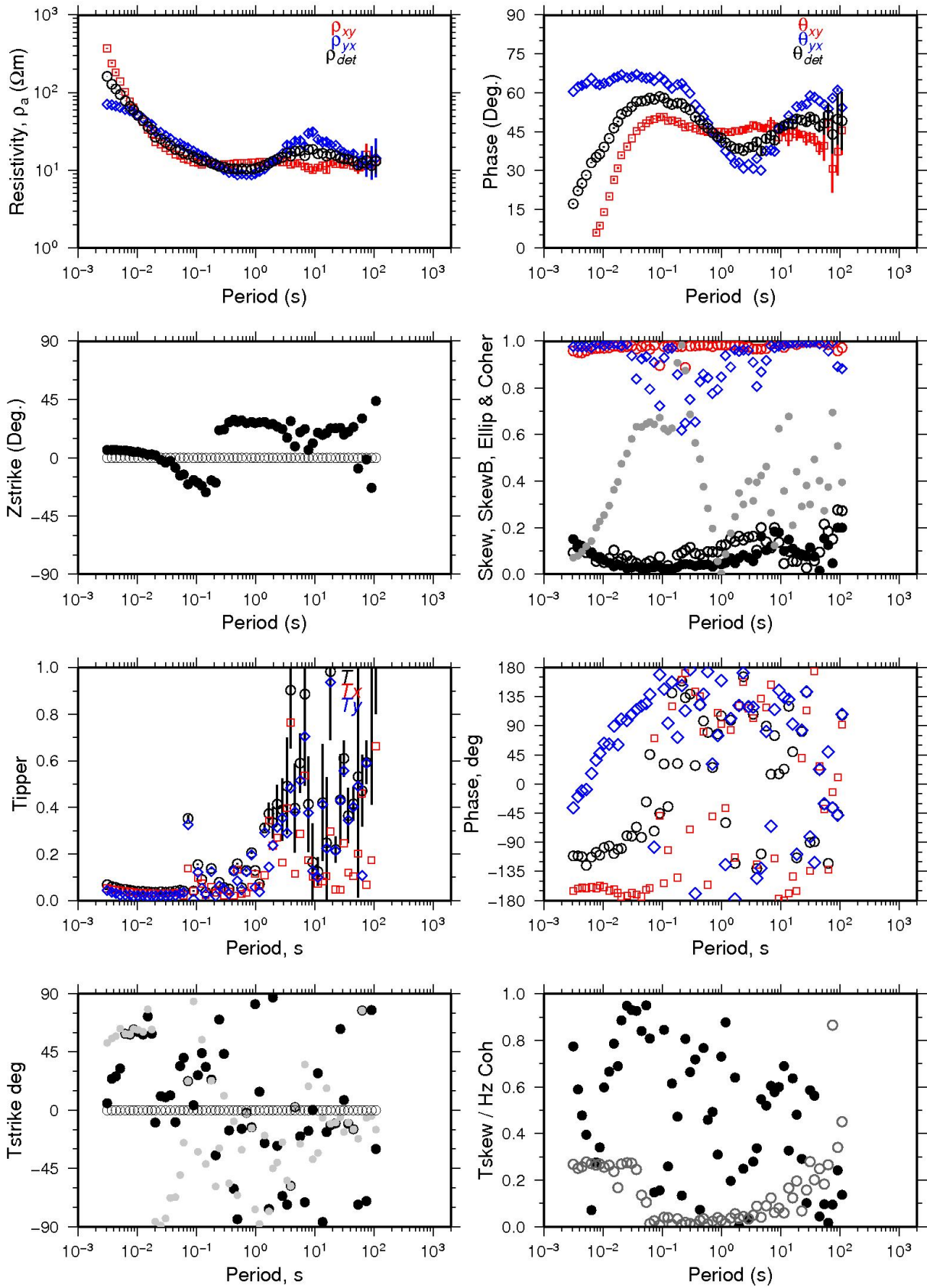
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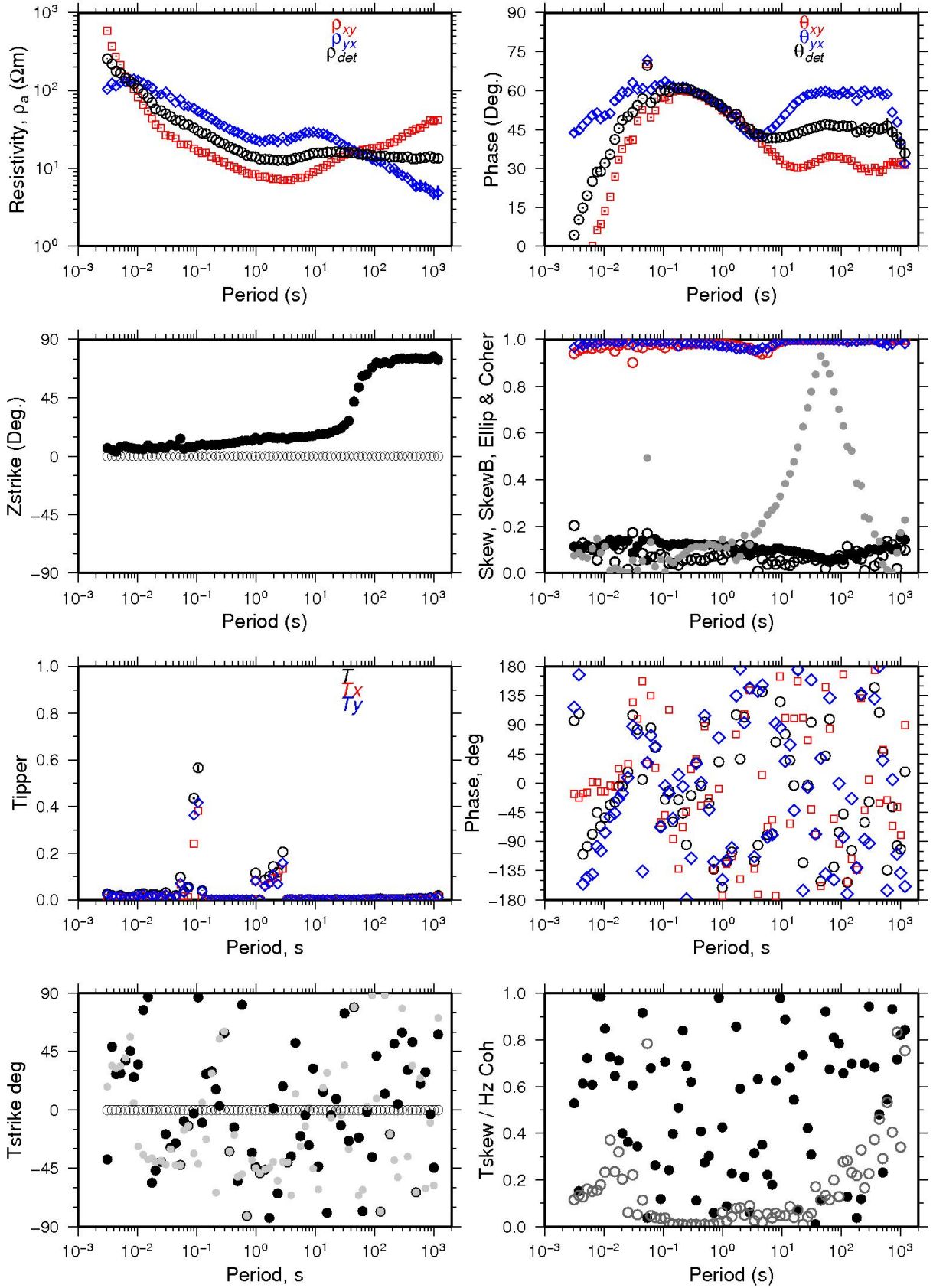
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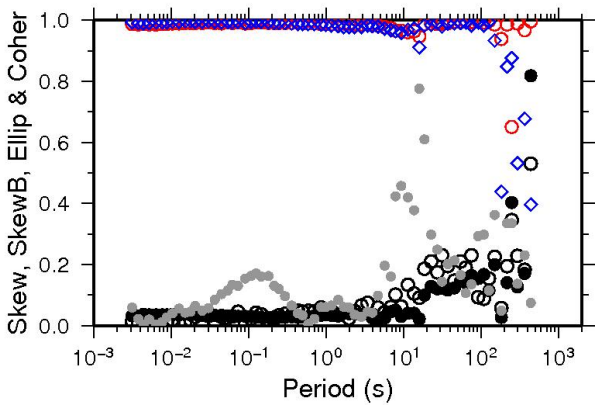
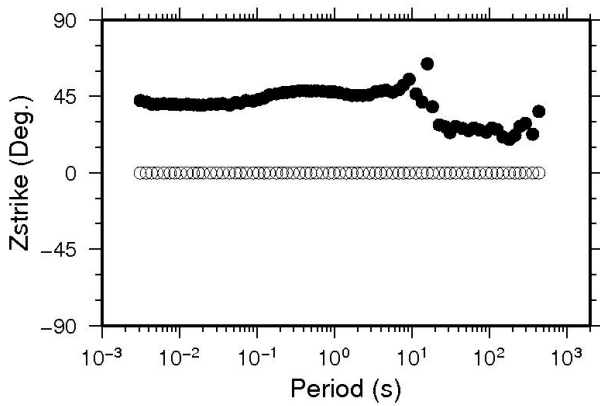
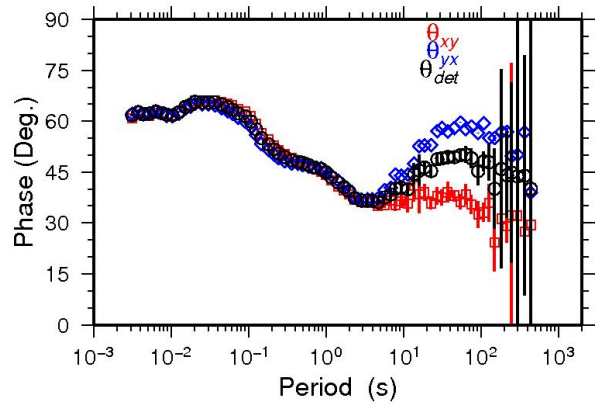
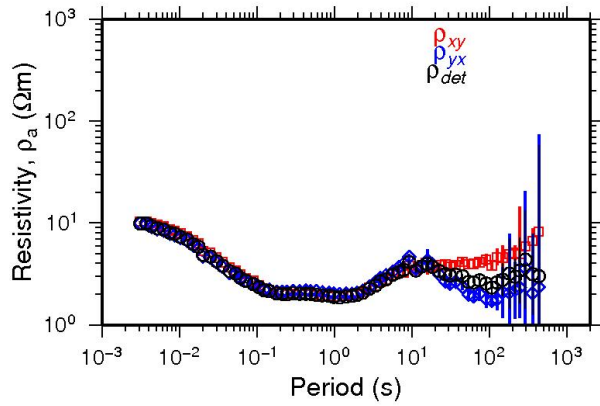
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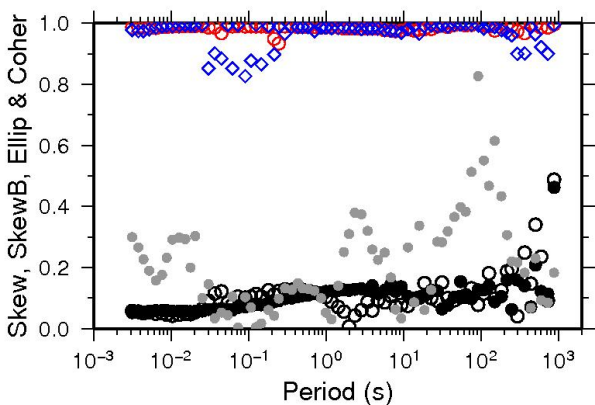
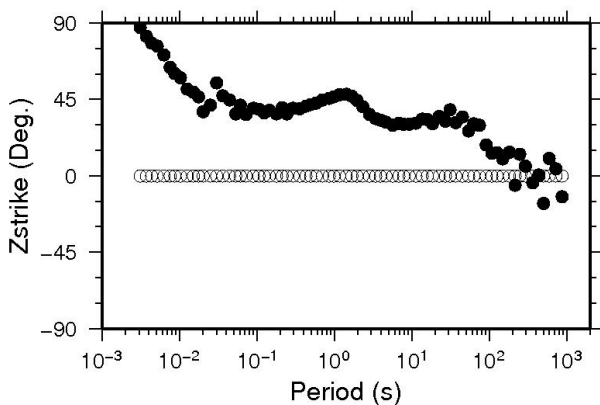
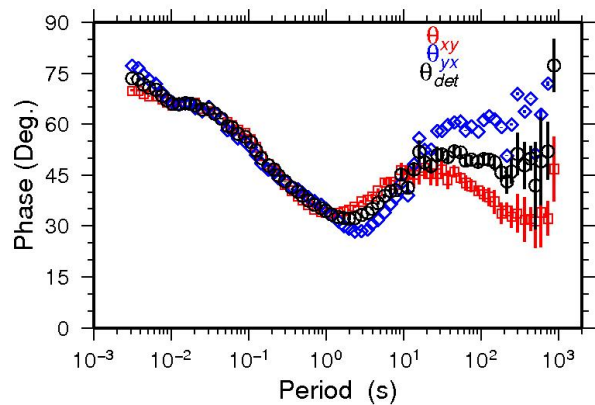
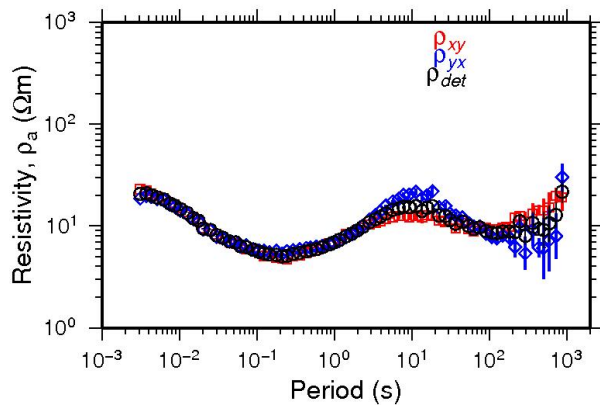
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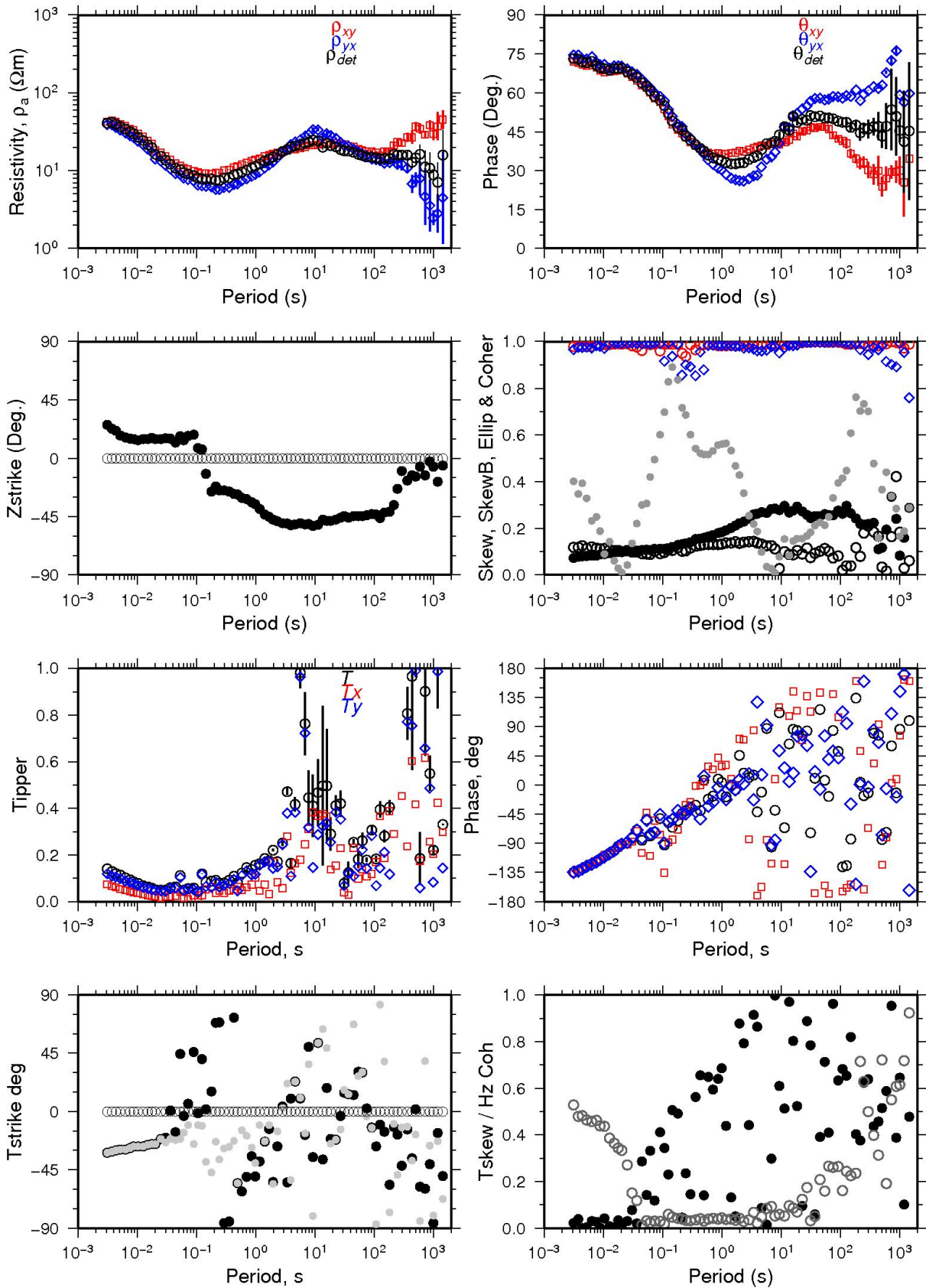
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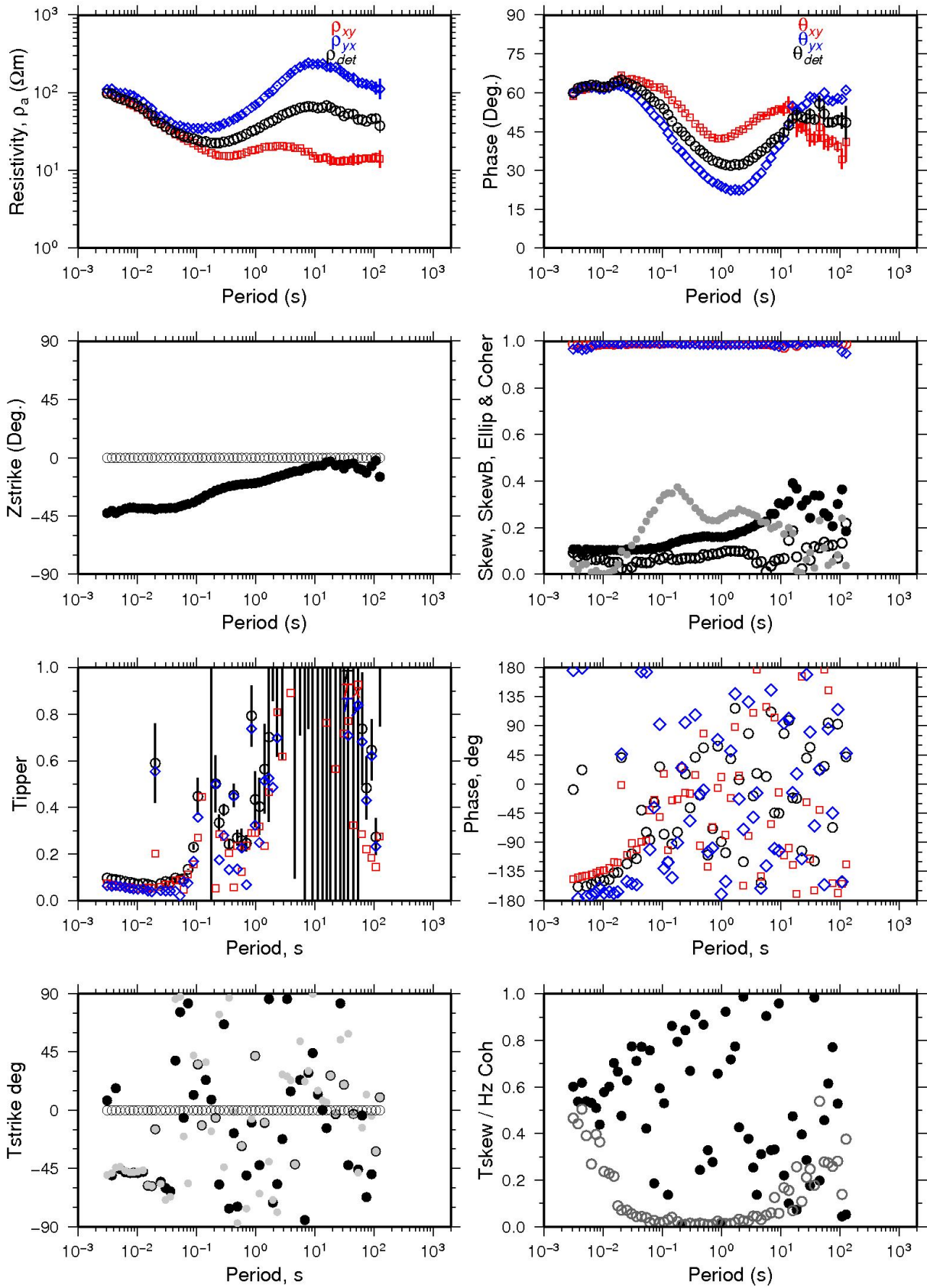
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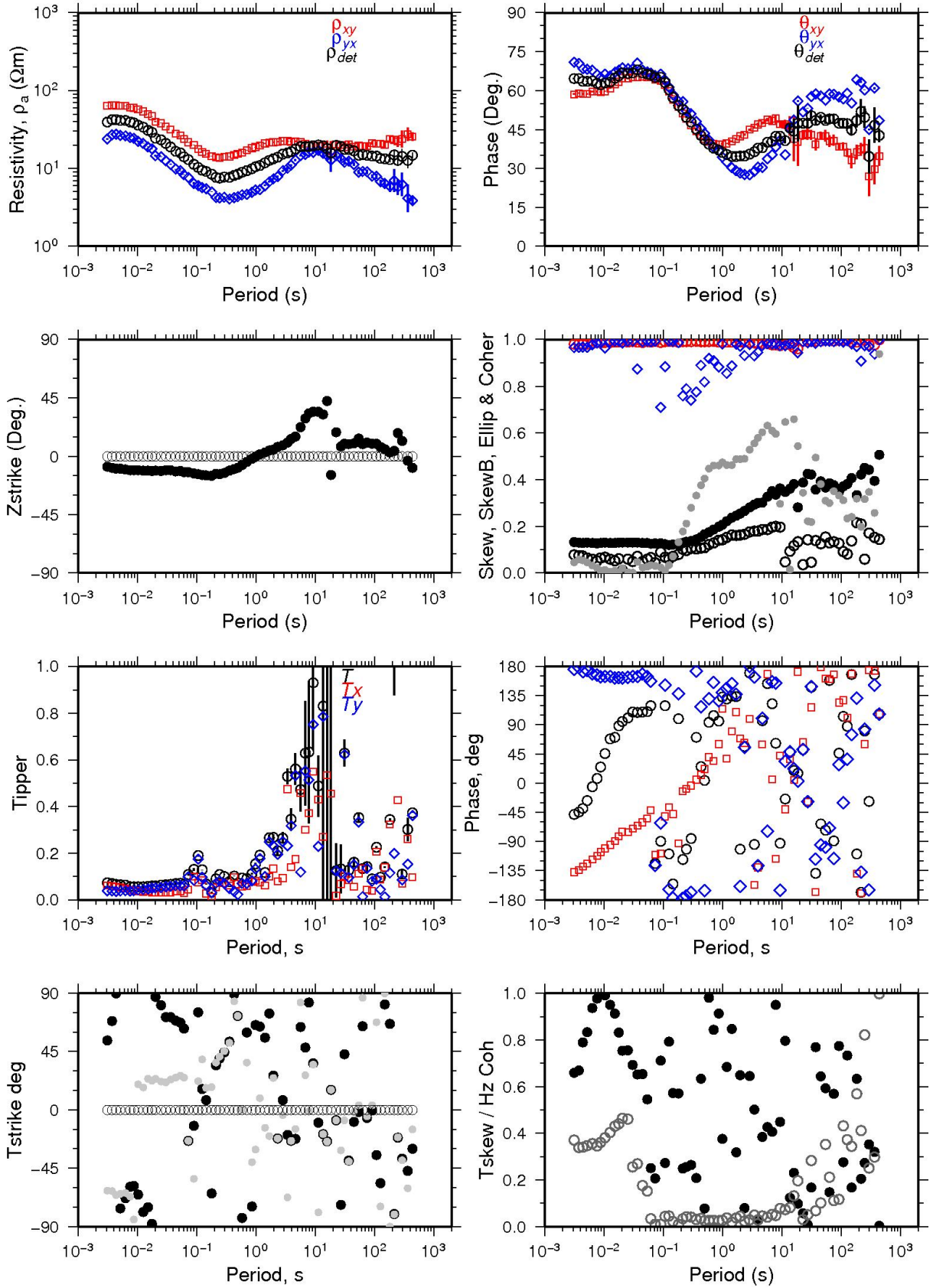
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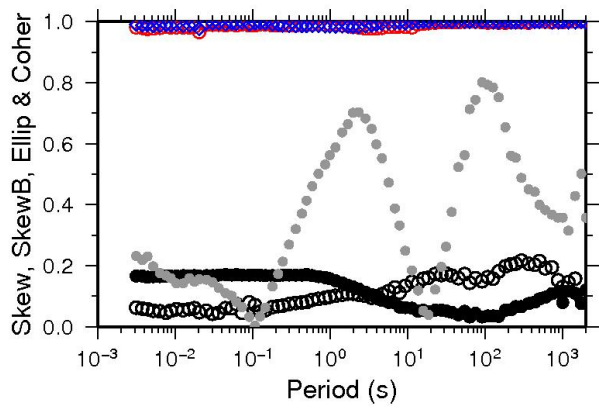
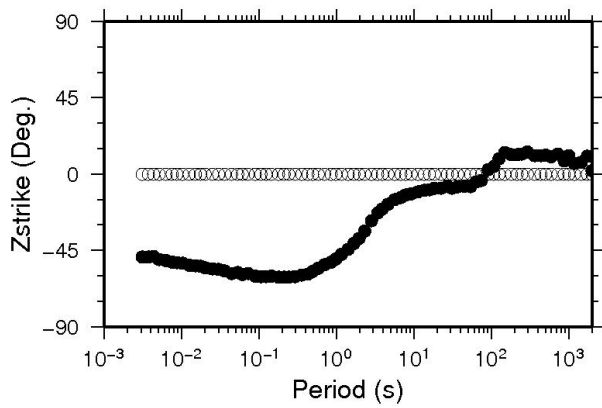
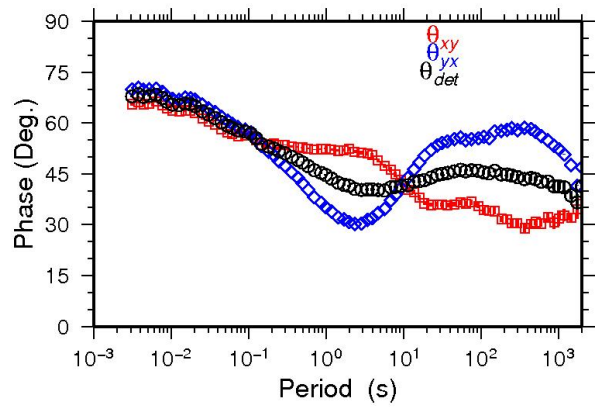
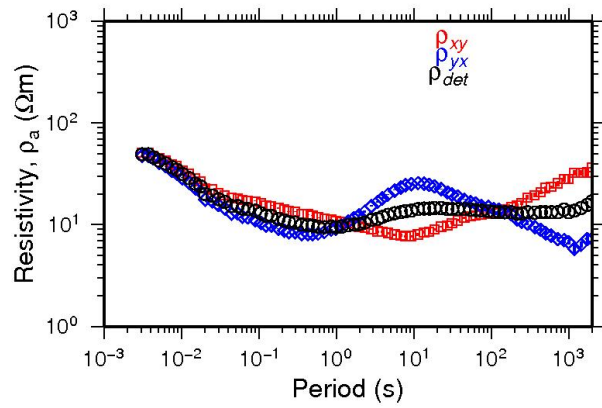
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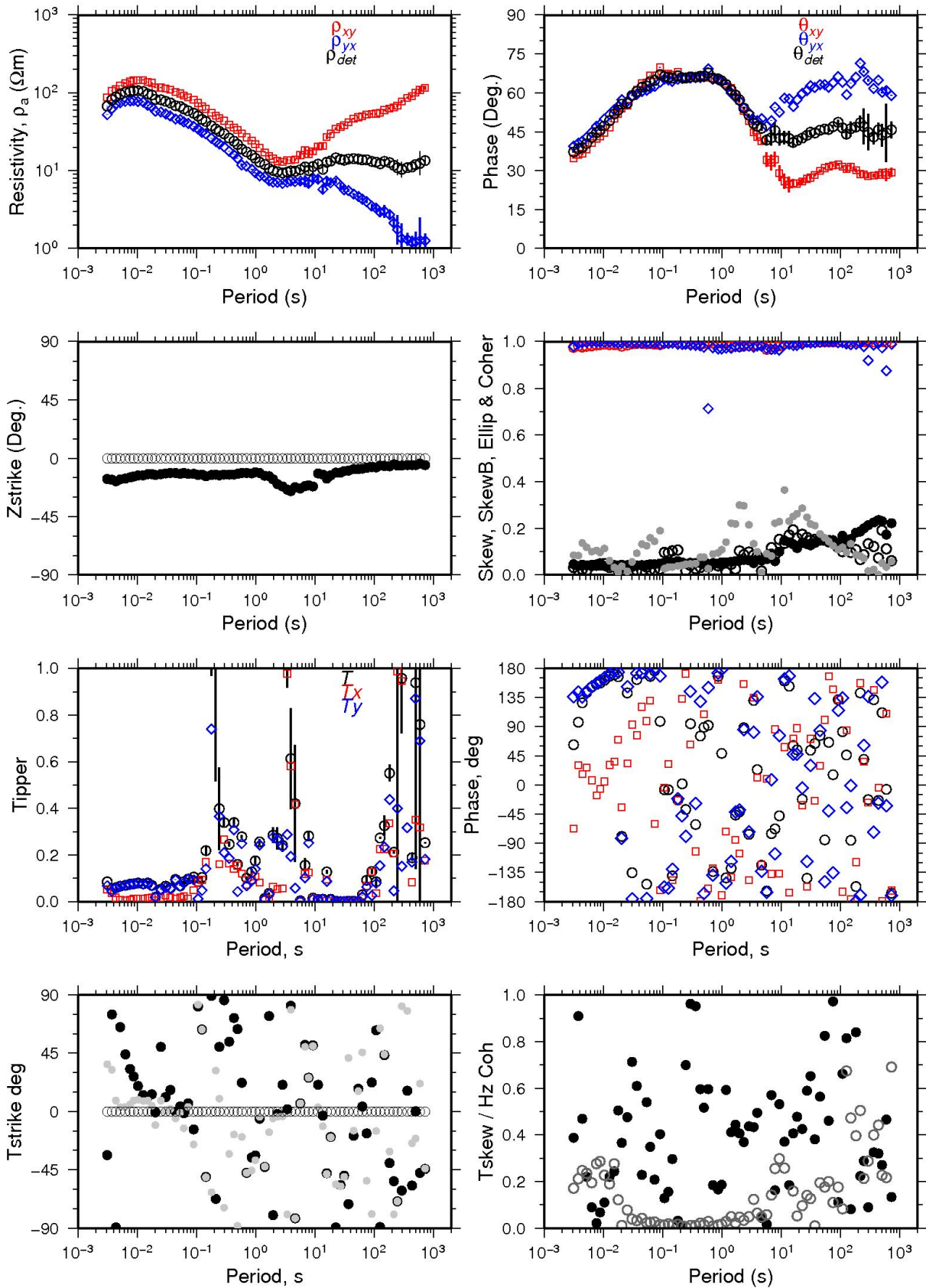
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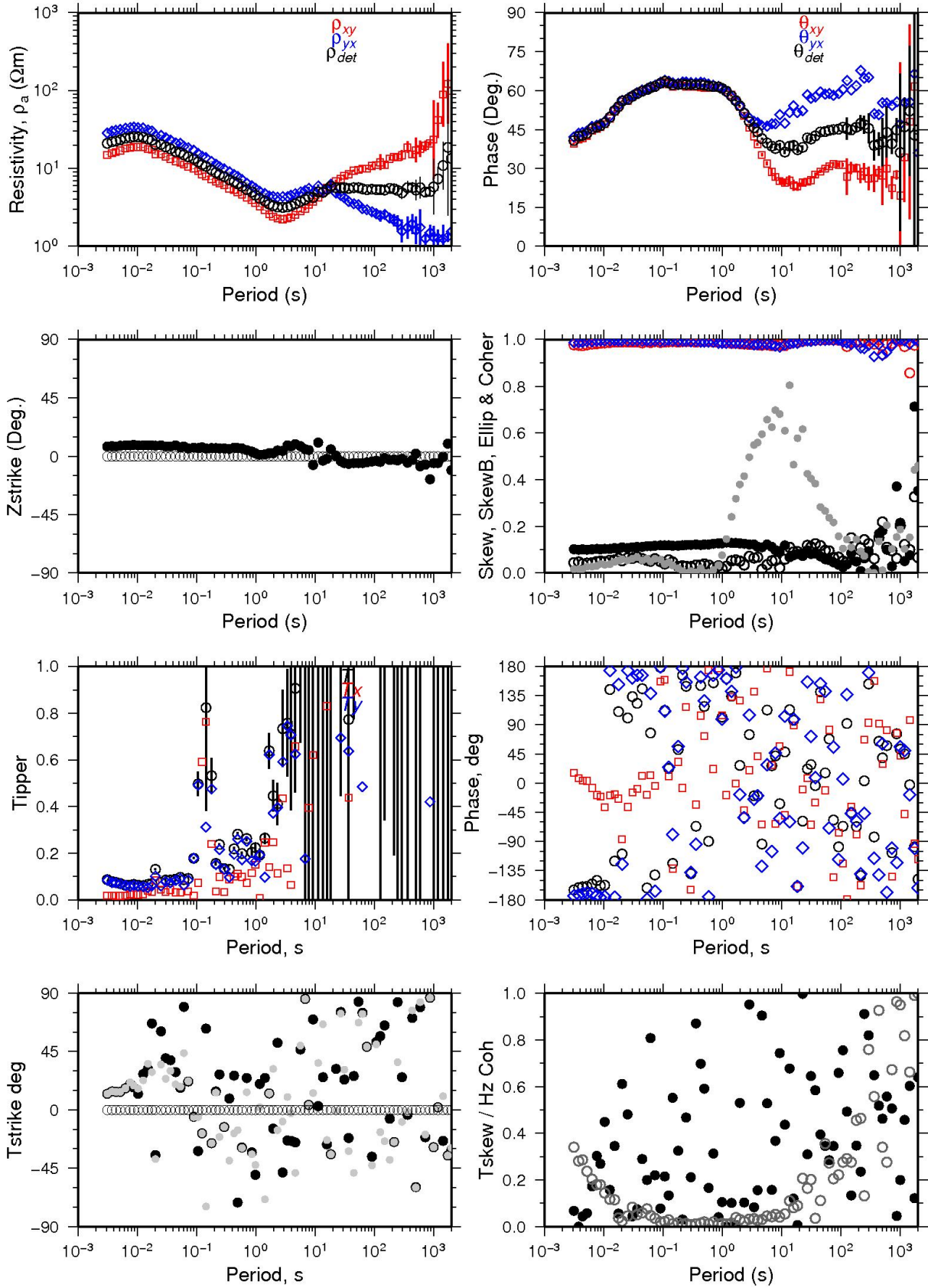
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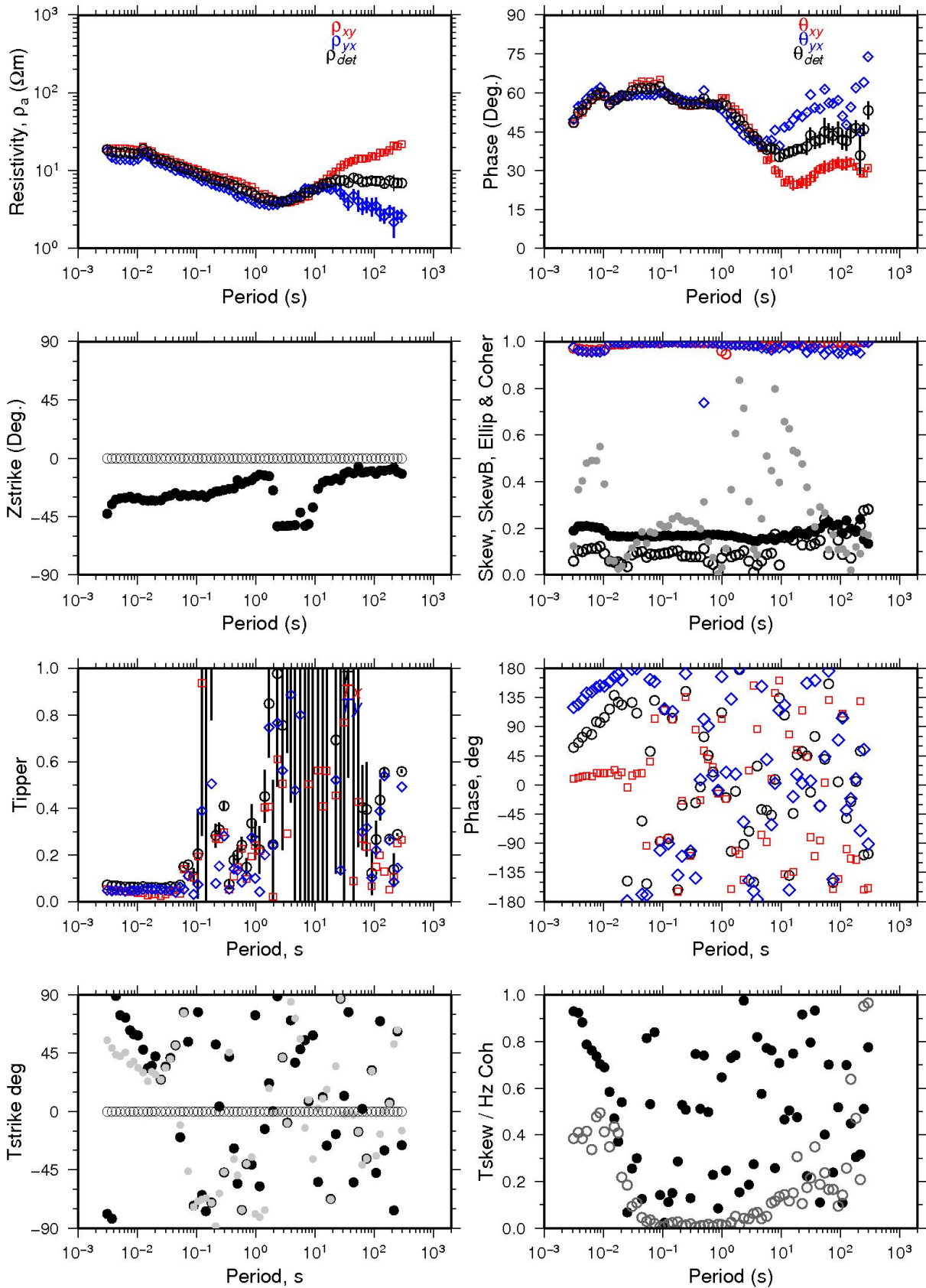
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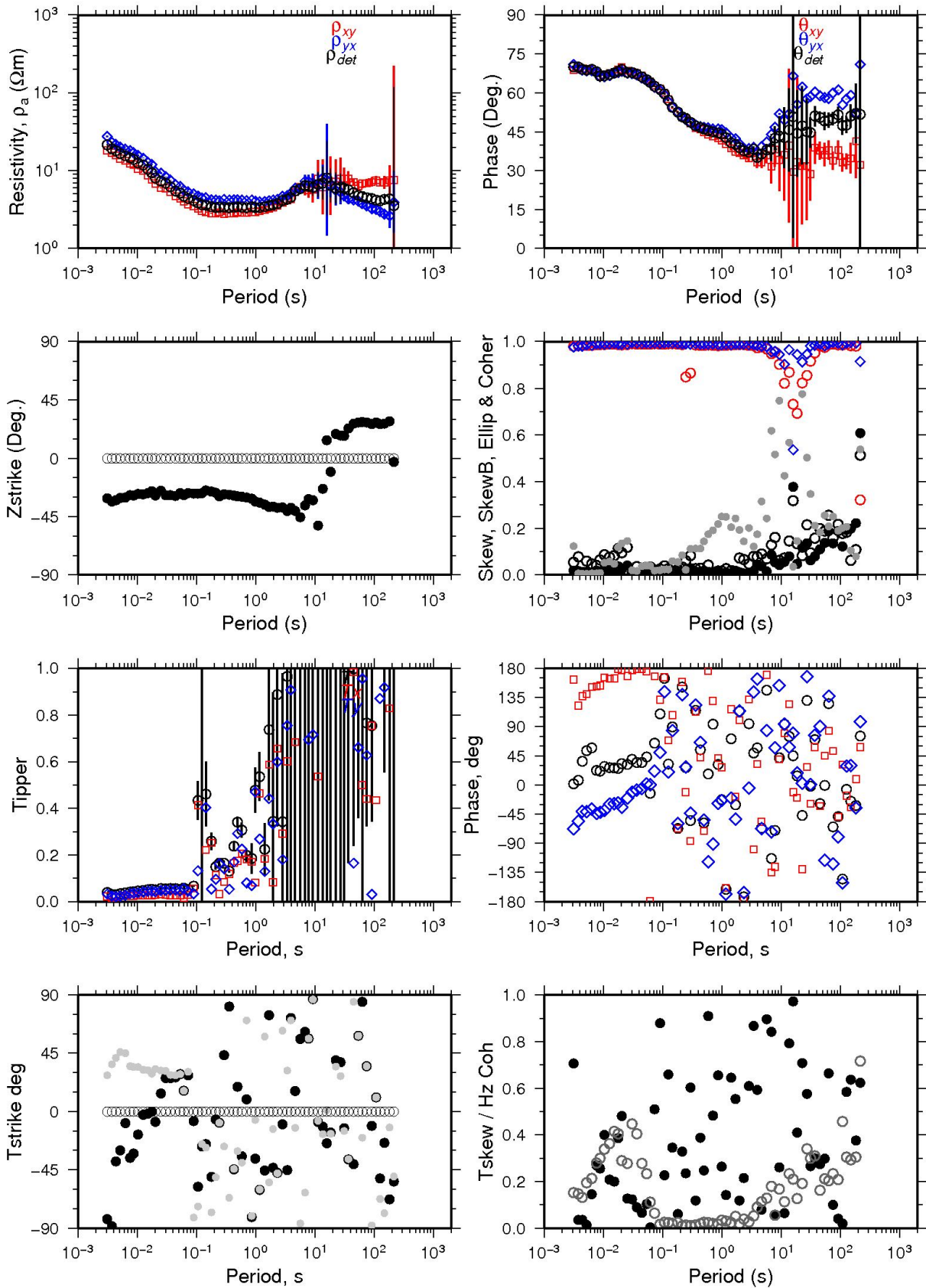
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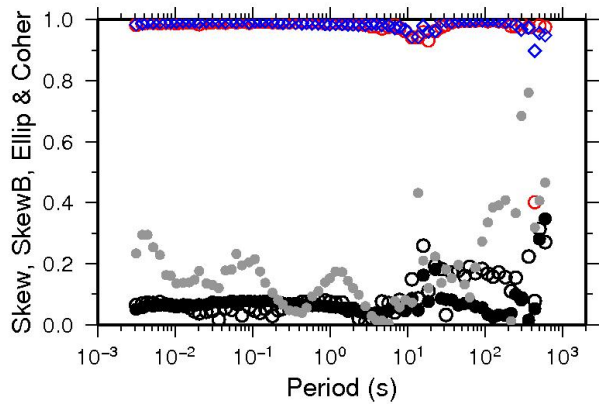
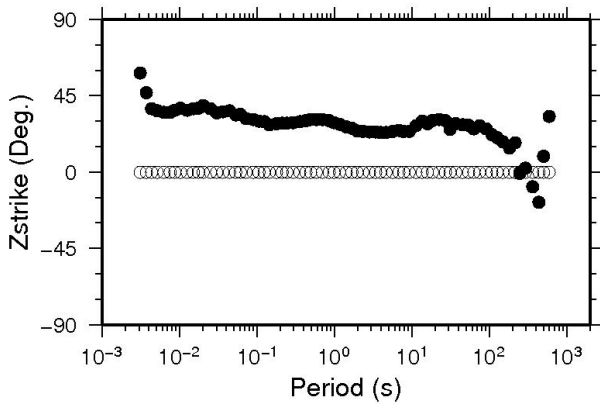
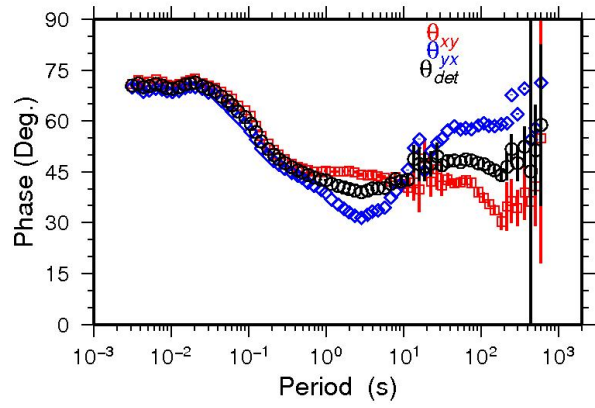
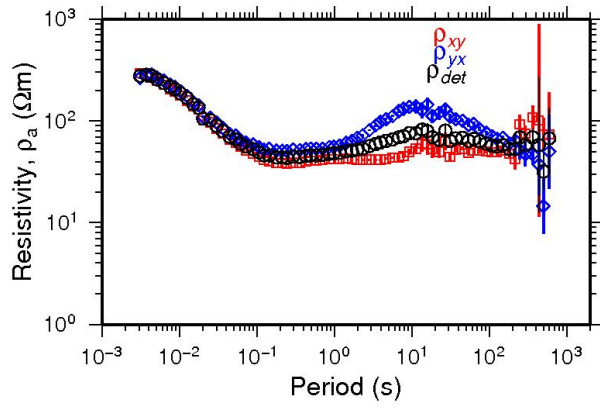
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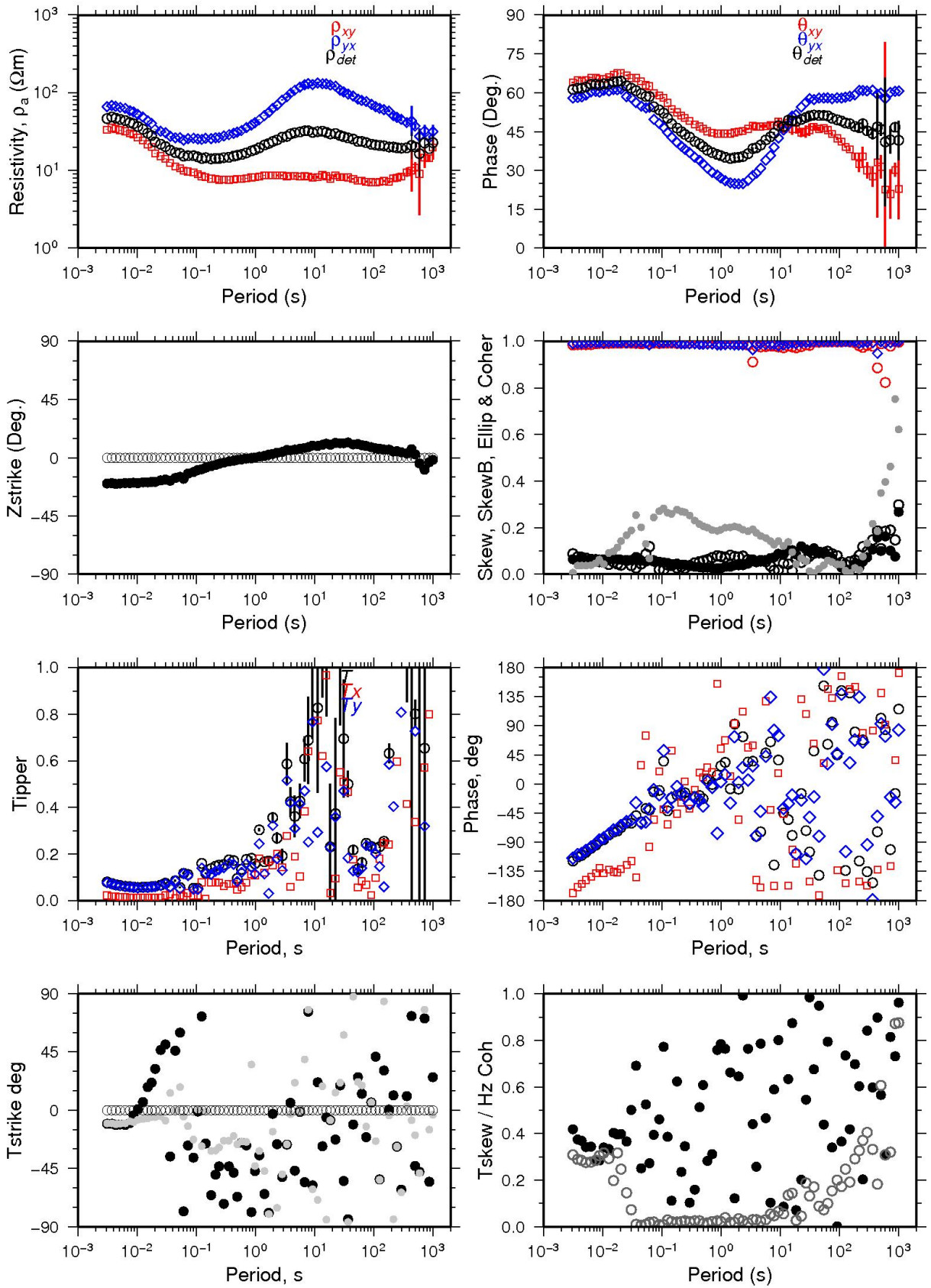
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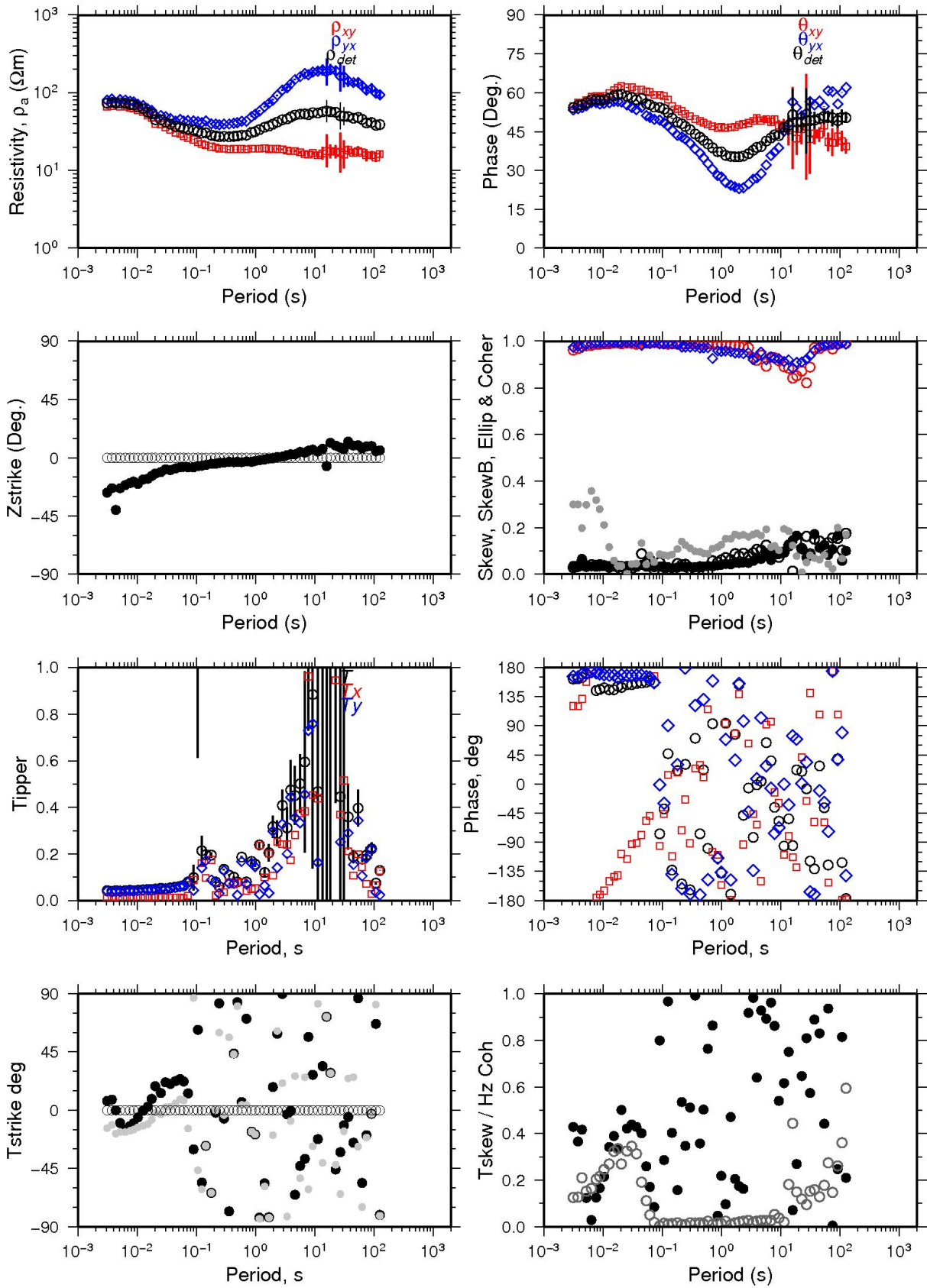
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Skrá: PAK38.EDI



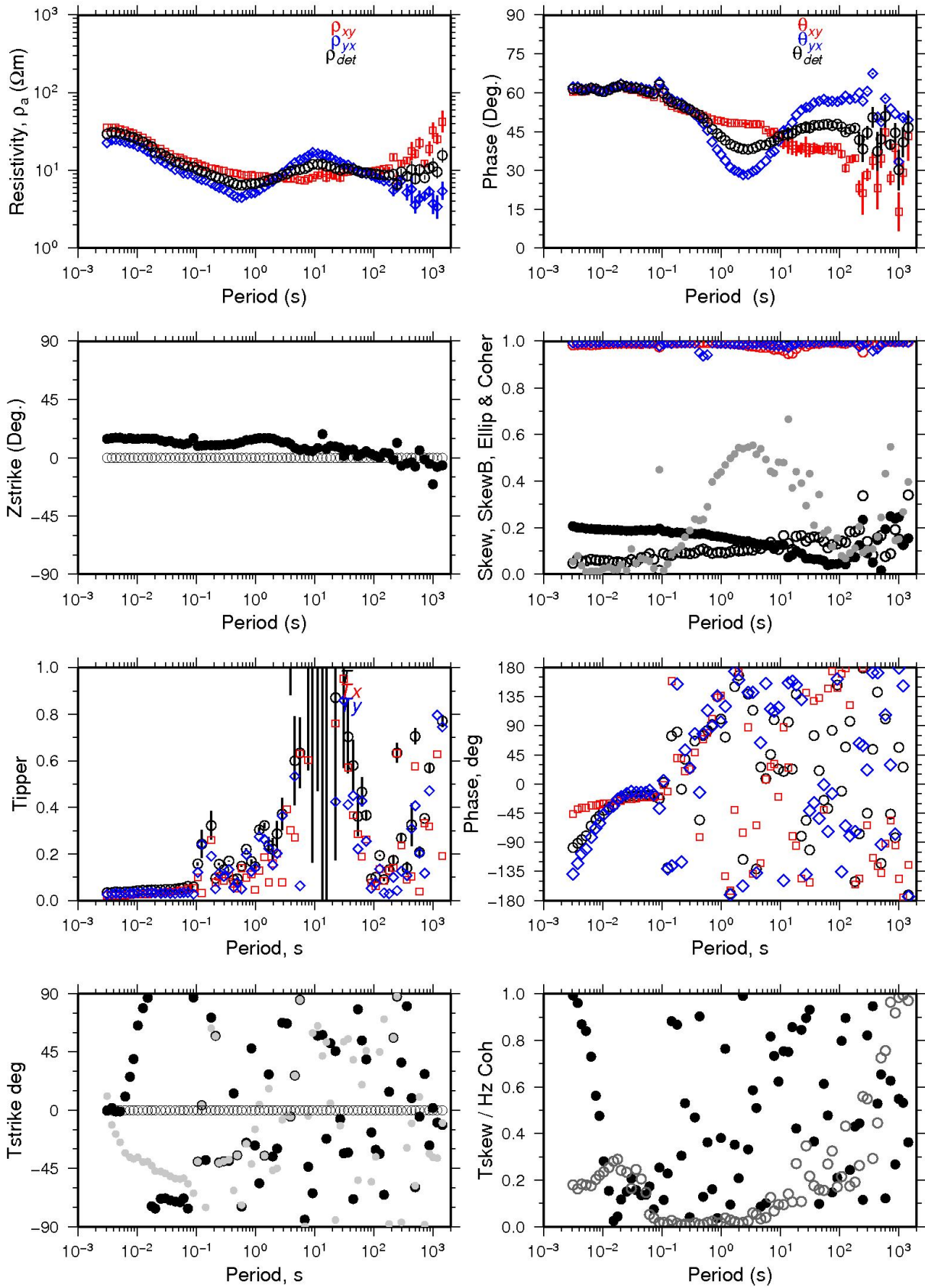
PAK

Skrá: PAK39.EDI



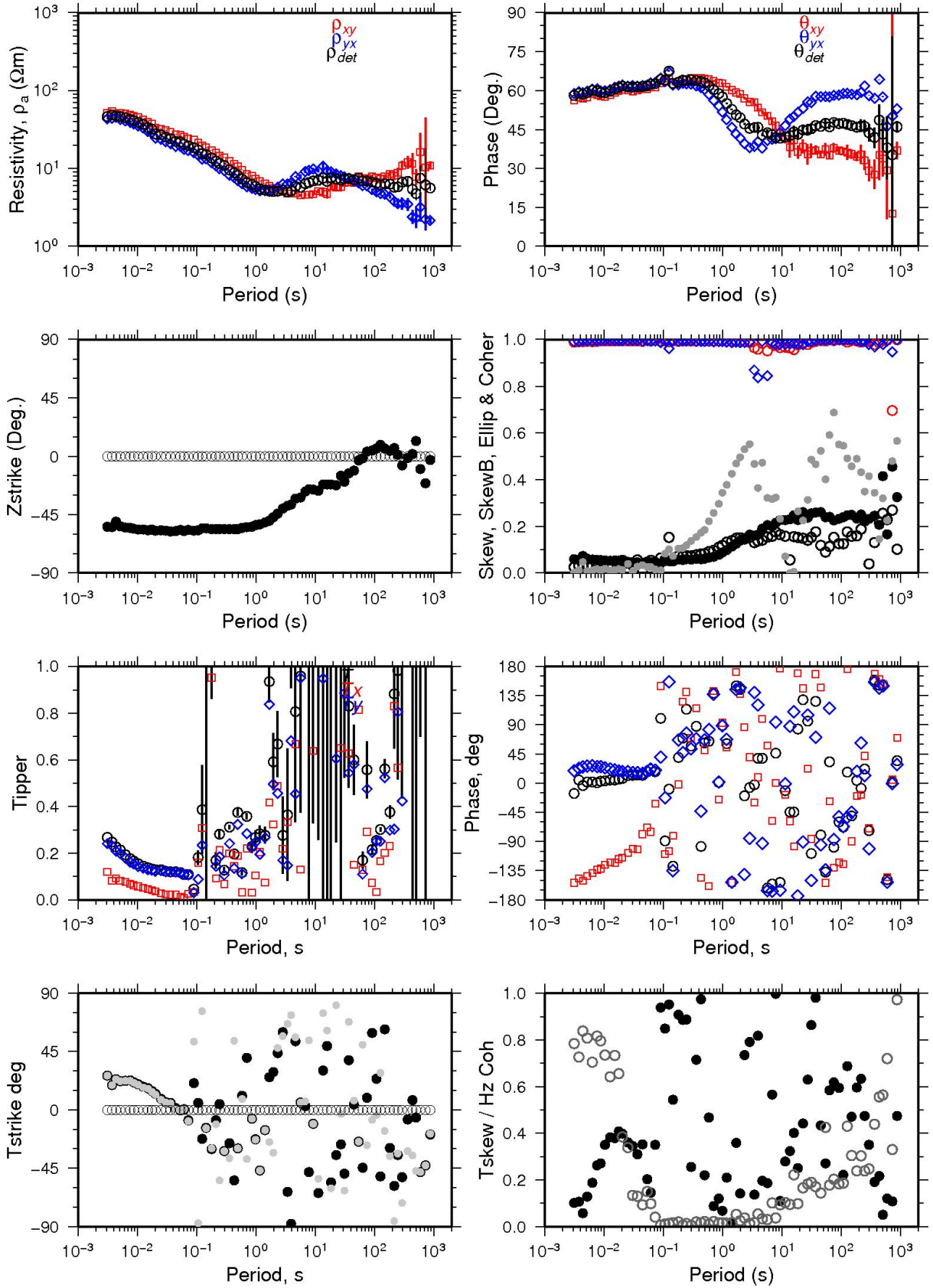
PAK

Skrá: PAK40.EDI



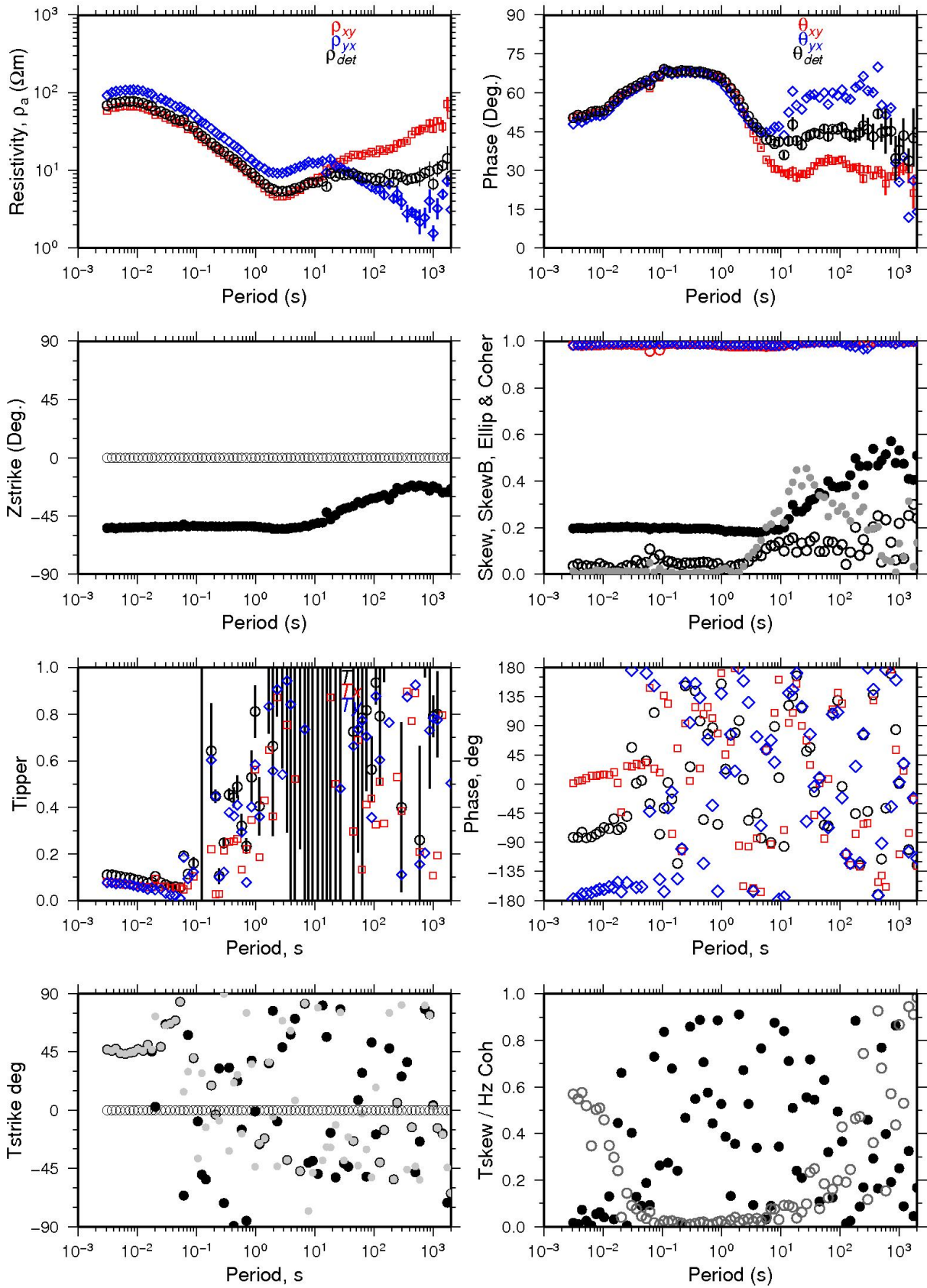
pak

Skrá: PAK41.EDI



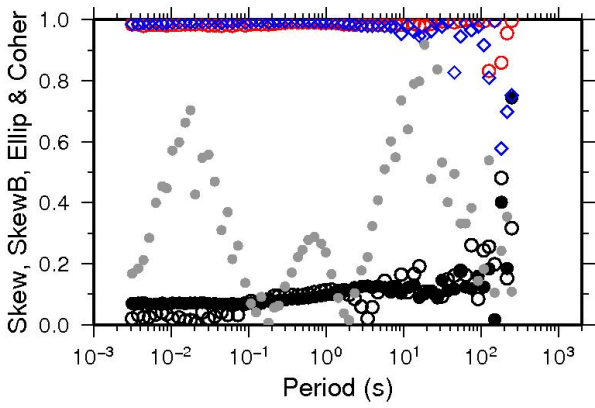
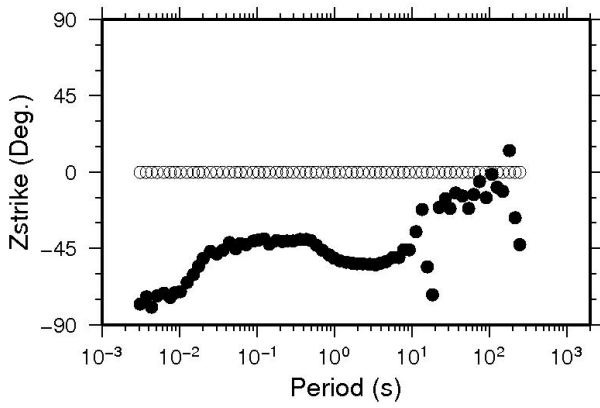
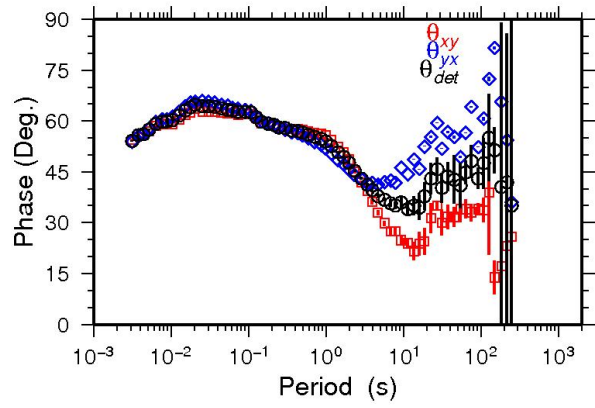
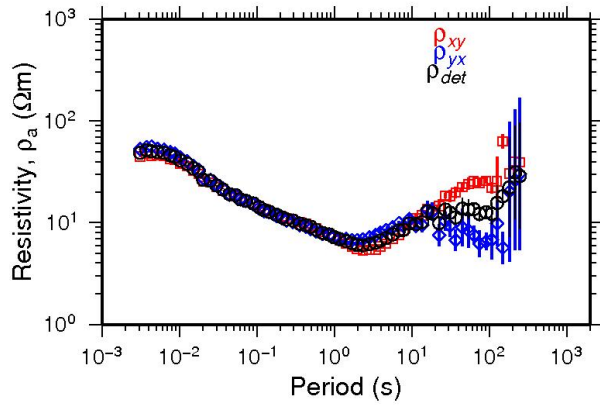
pak

Skrá: PAK42.EDI



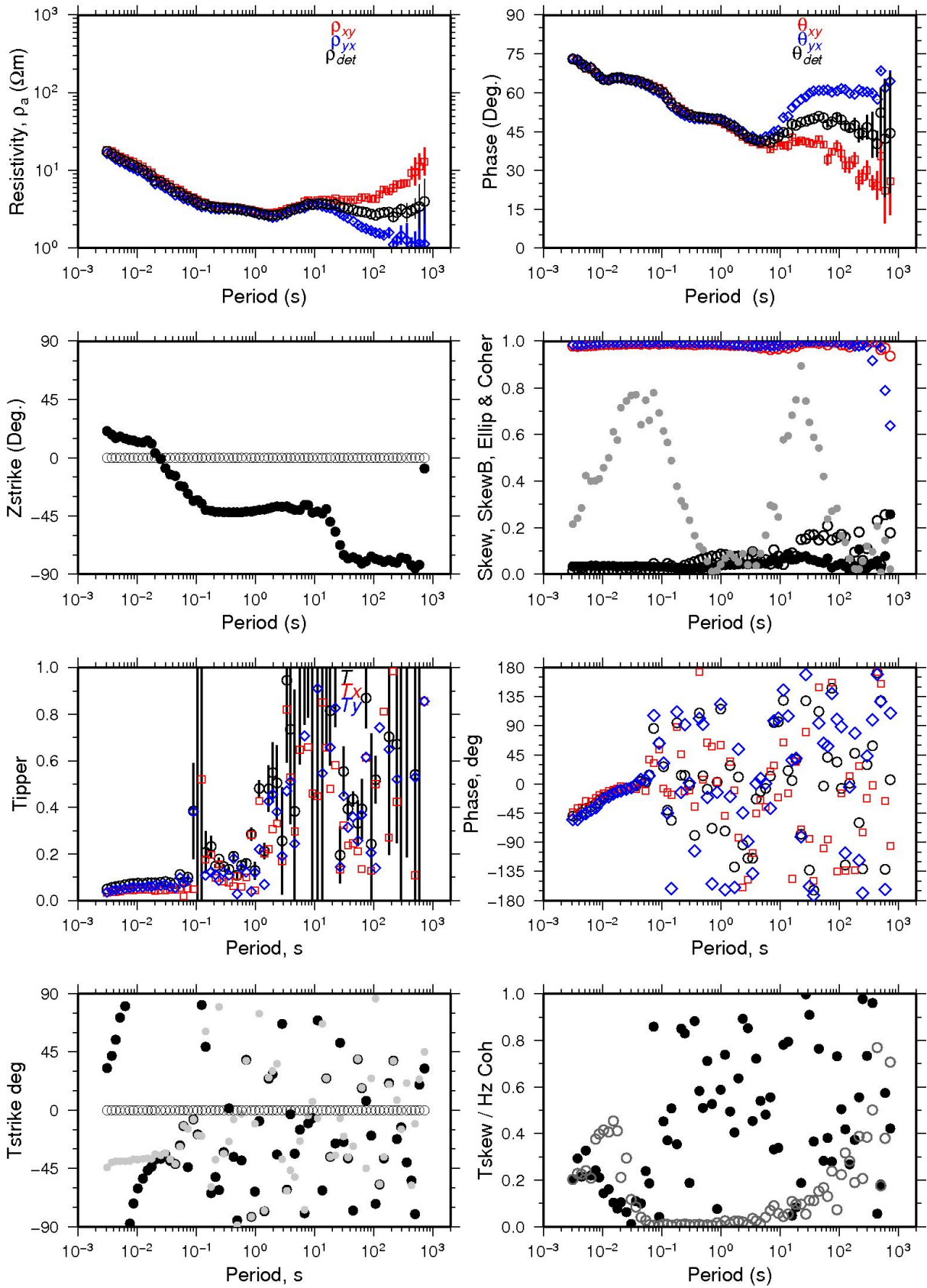
Pak

Skrá: PAK43.EDI



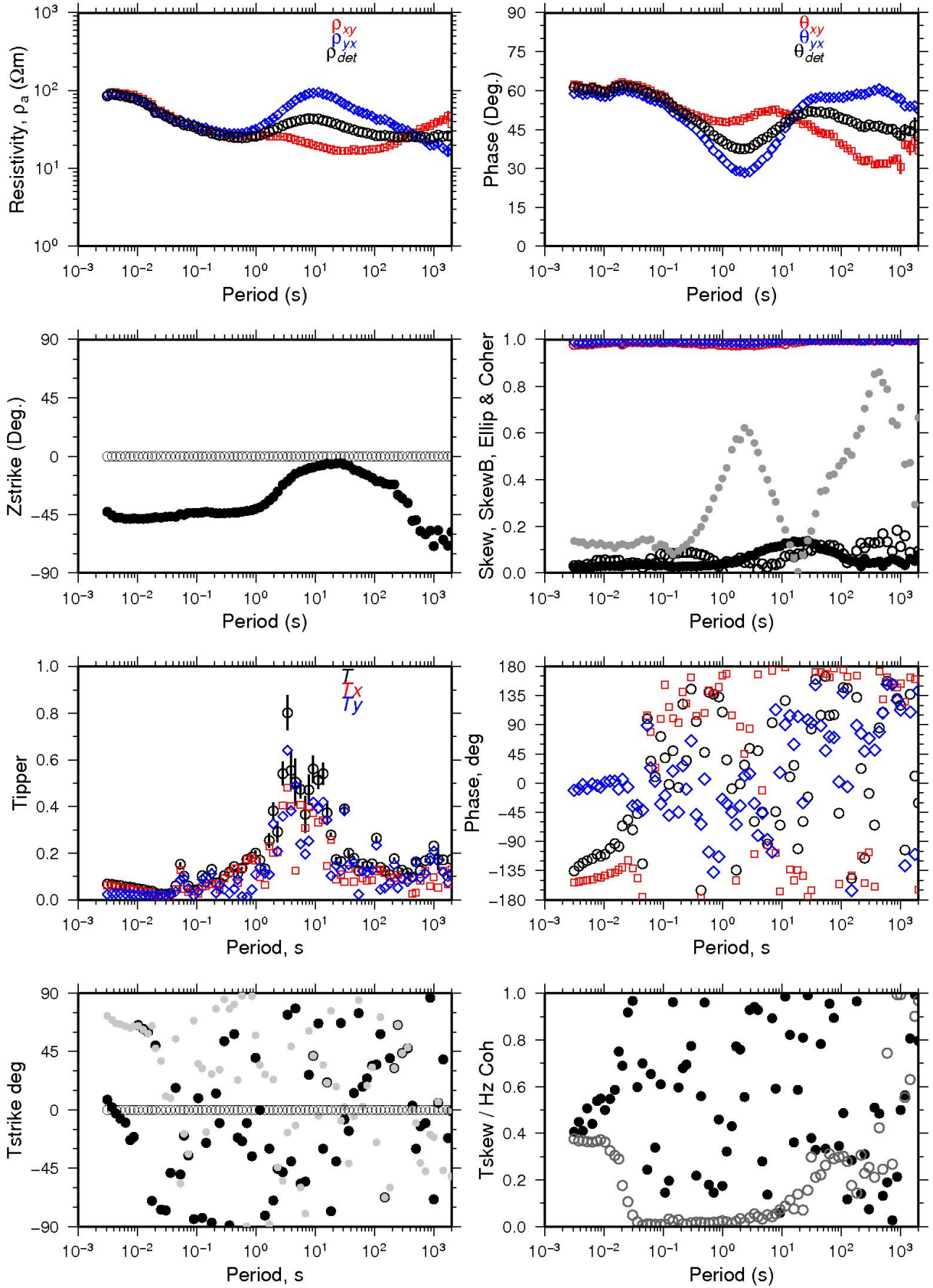
PK4

Skrá: PAK43A.EDI



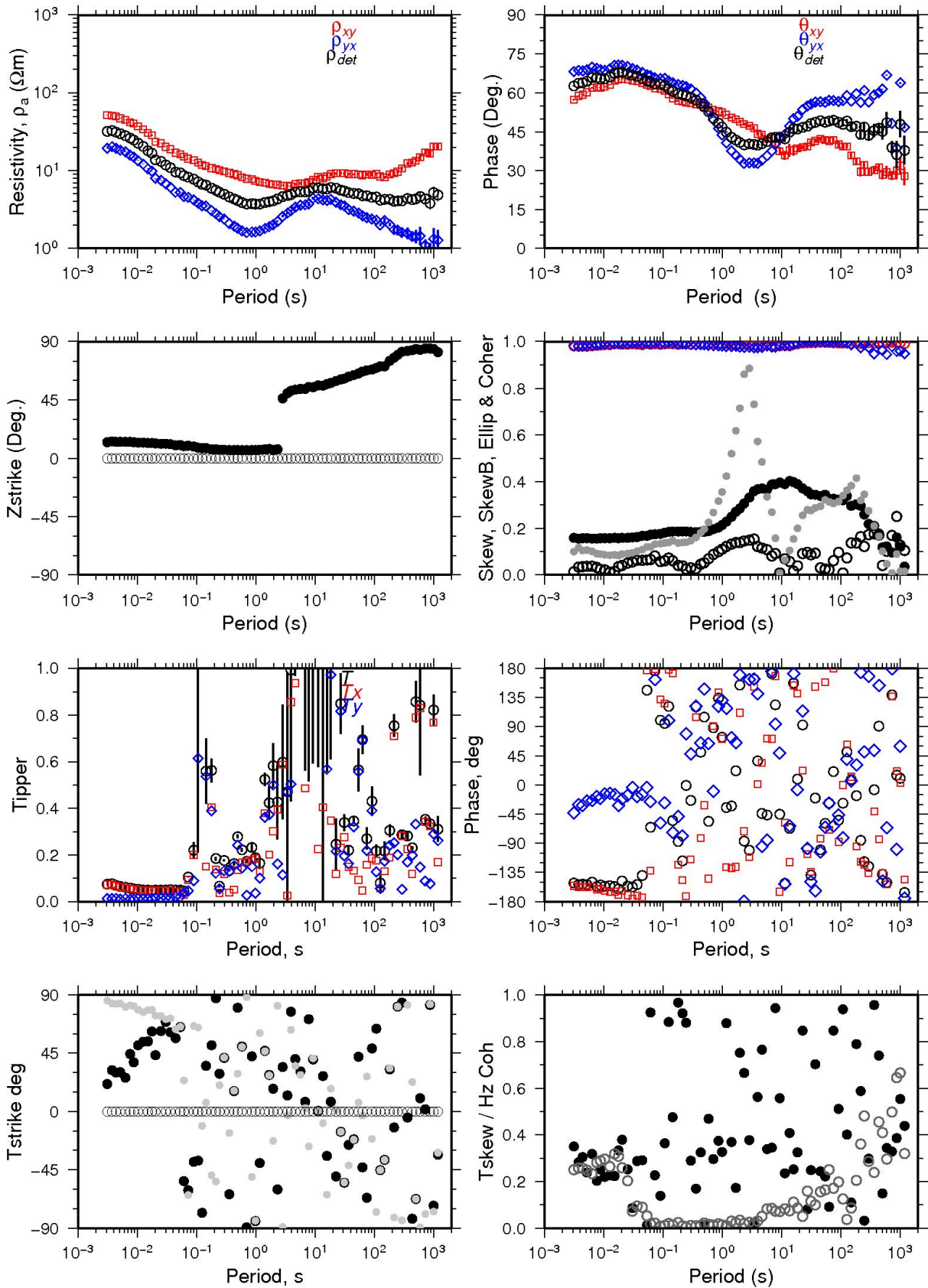
pak

Skrá: PAK45.EDI



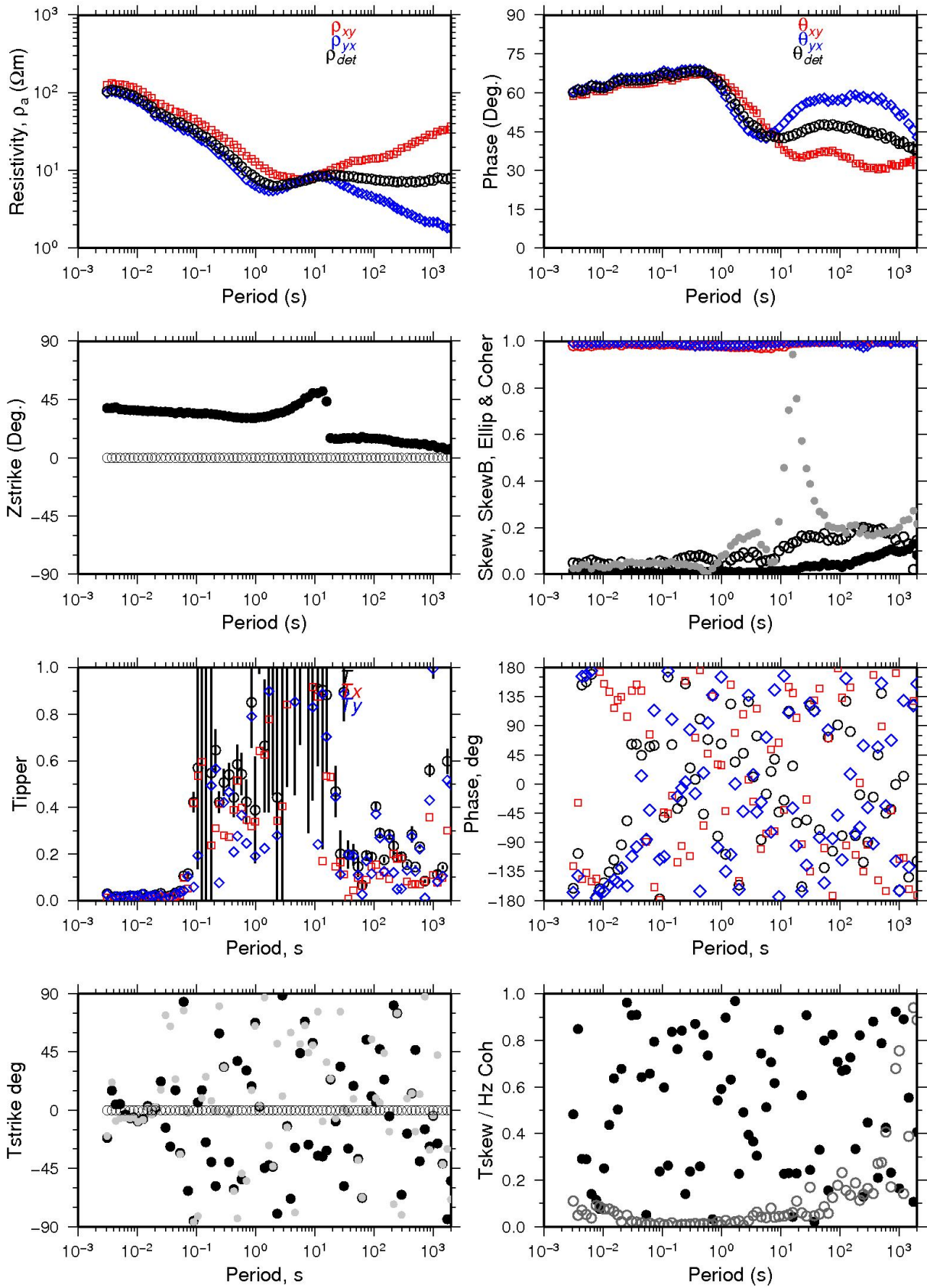
PAK

Skrá: PAK47.EDI



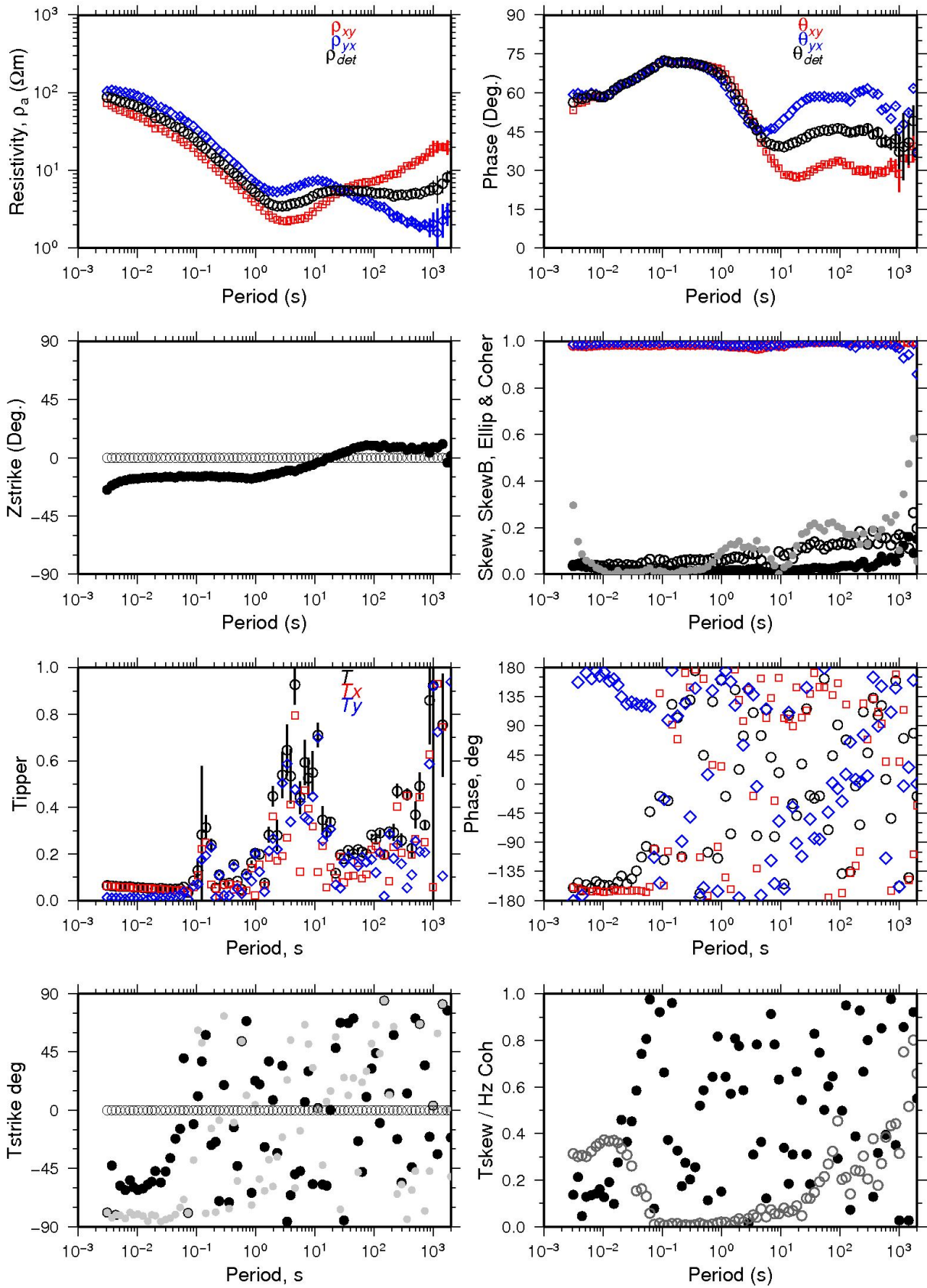
pak

Skrá: PAK48.EDI



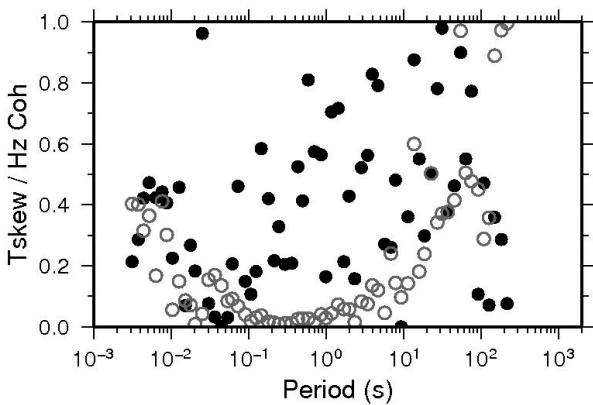
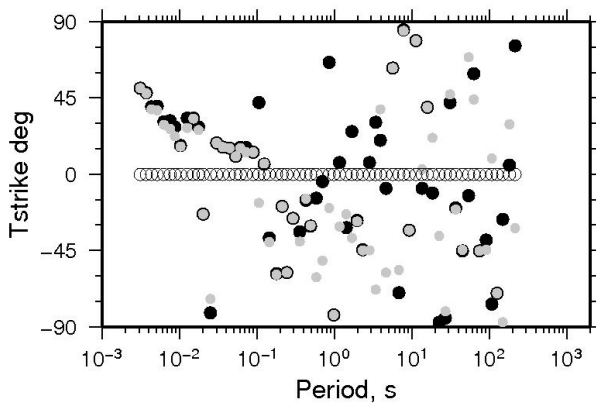
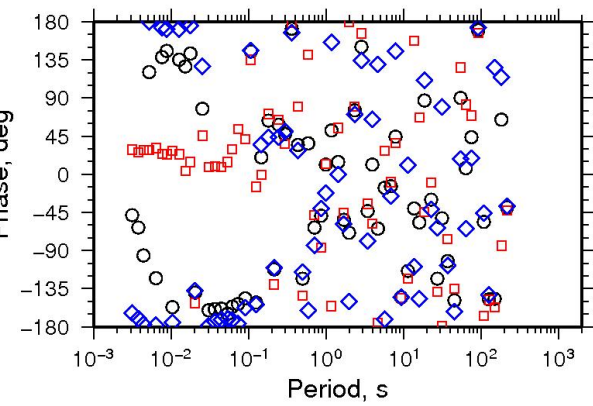
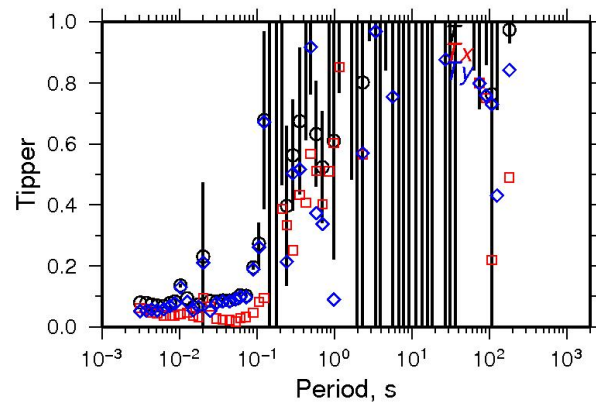
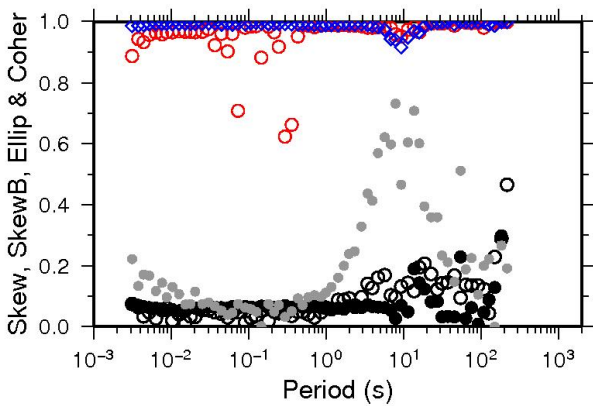
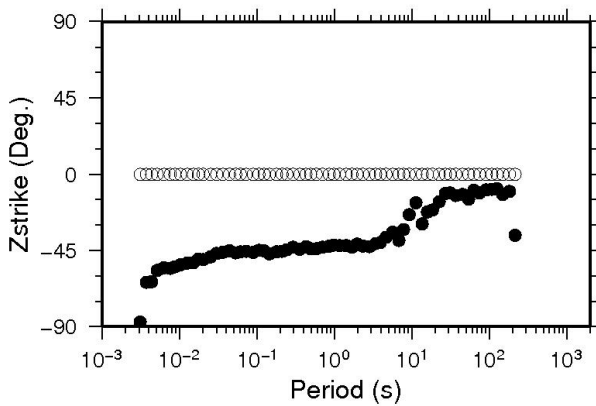
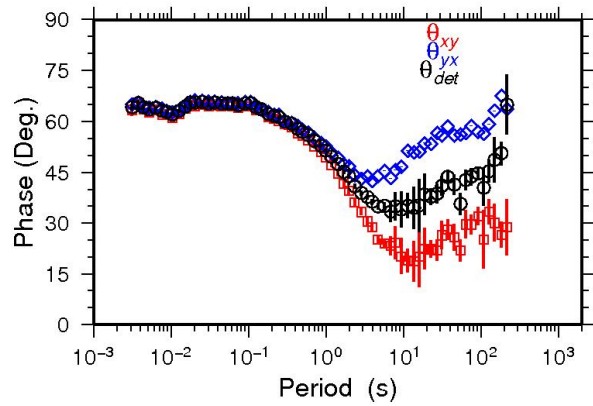
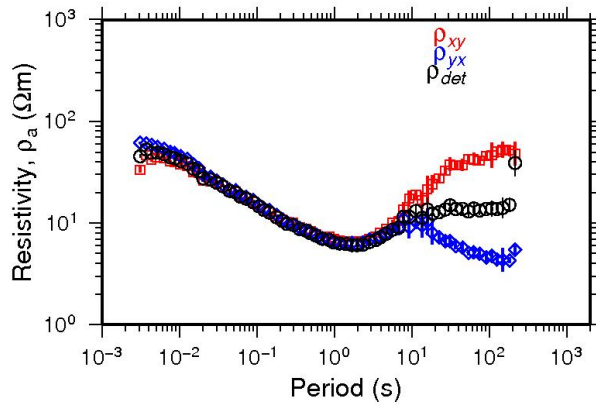
pak

Skrá: PAK49.EDI



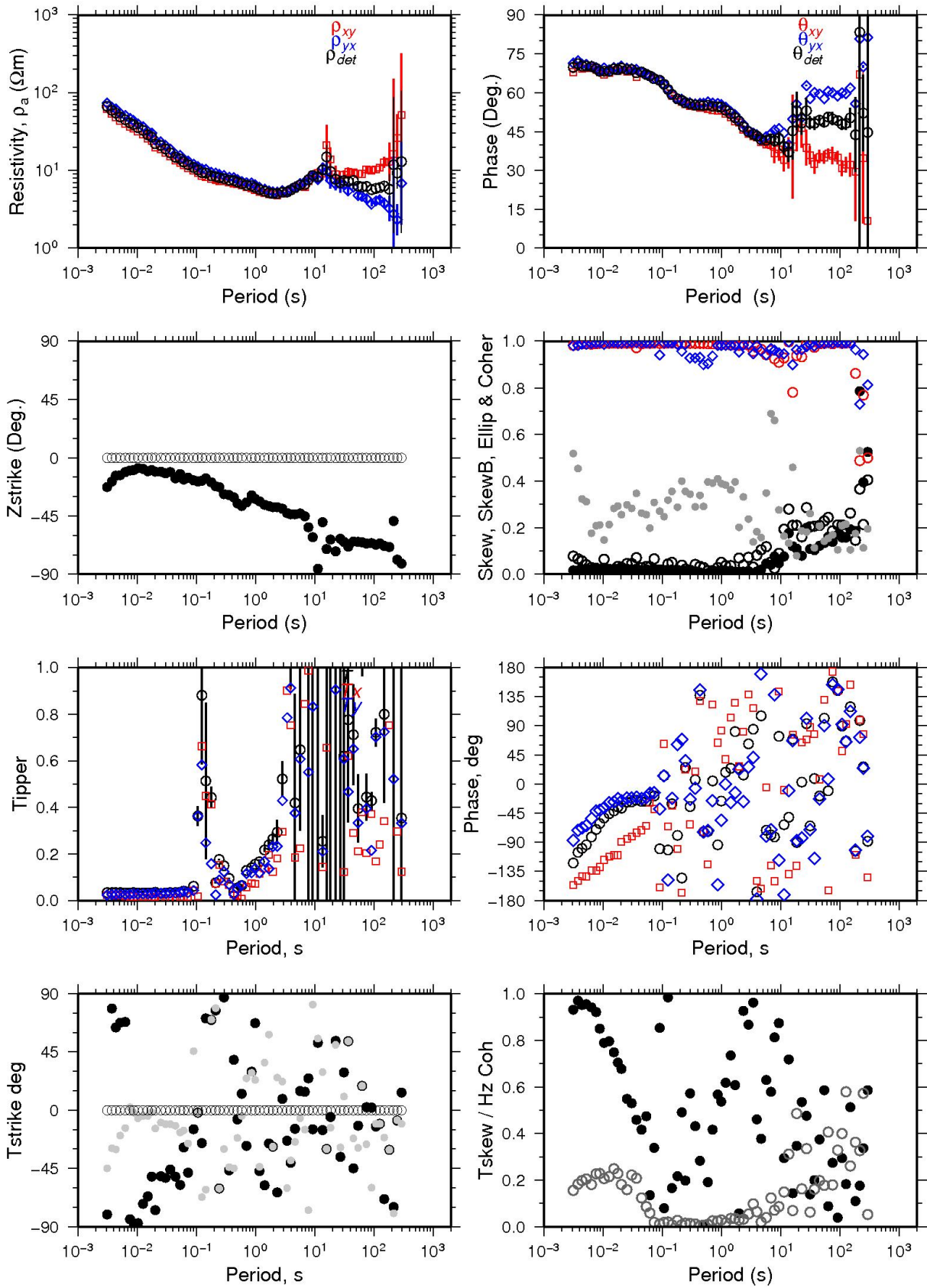
pak

Skrá: PAK51.EDI



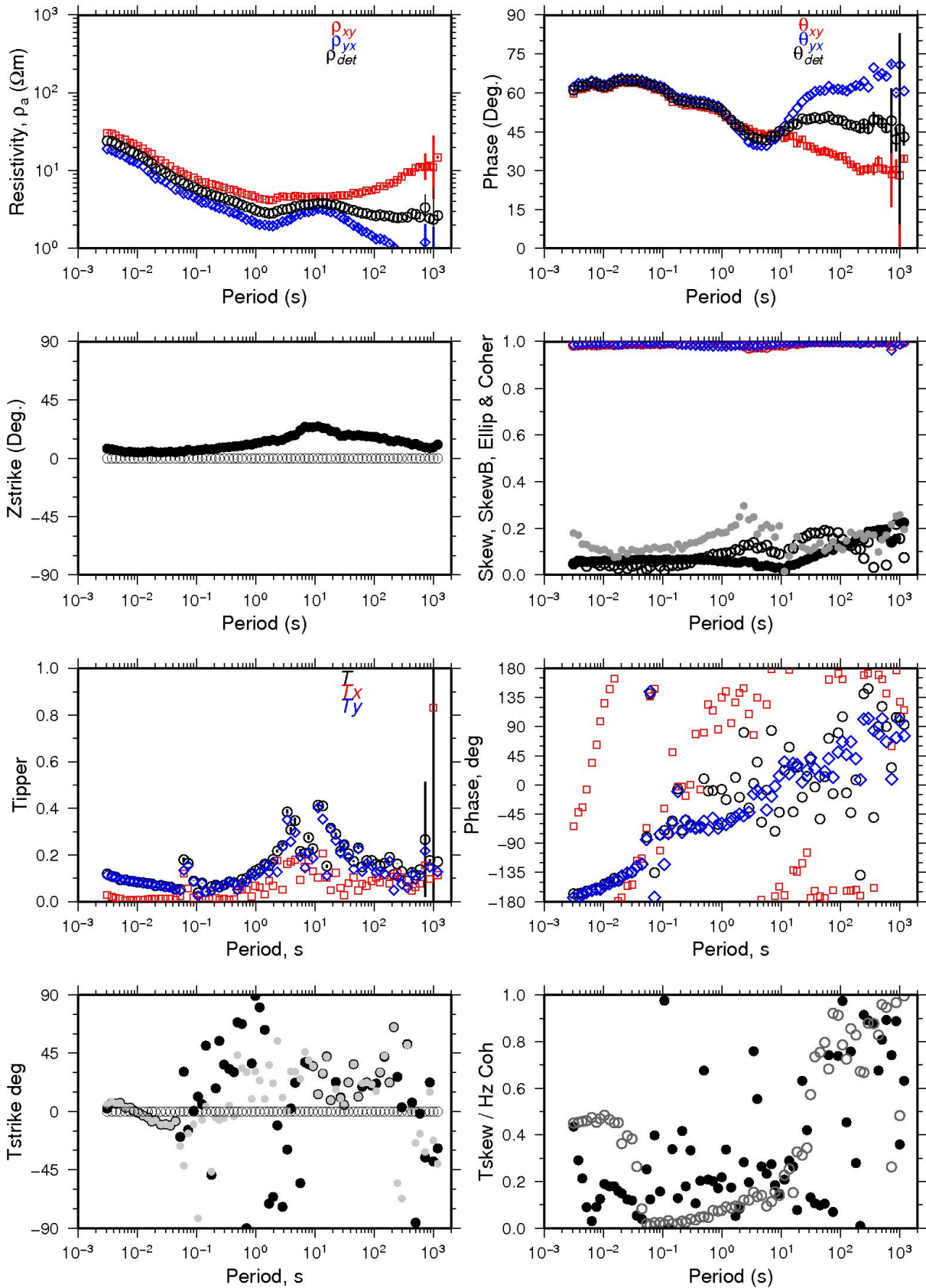
PAK

Skrá: PAK52.EDI



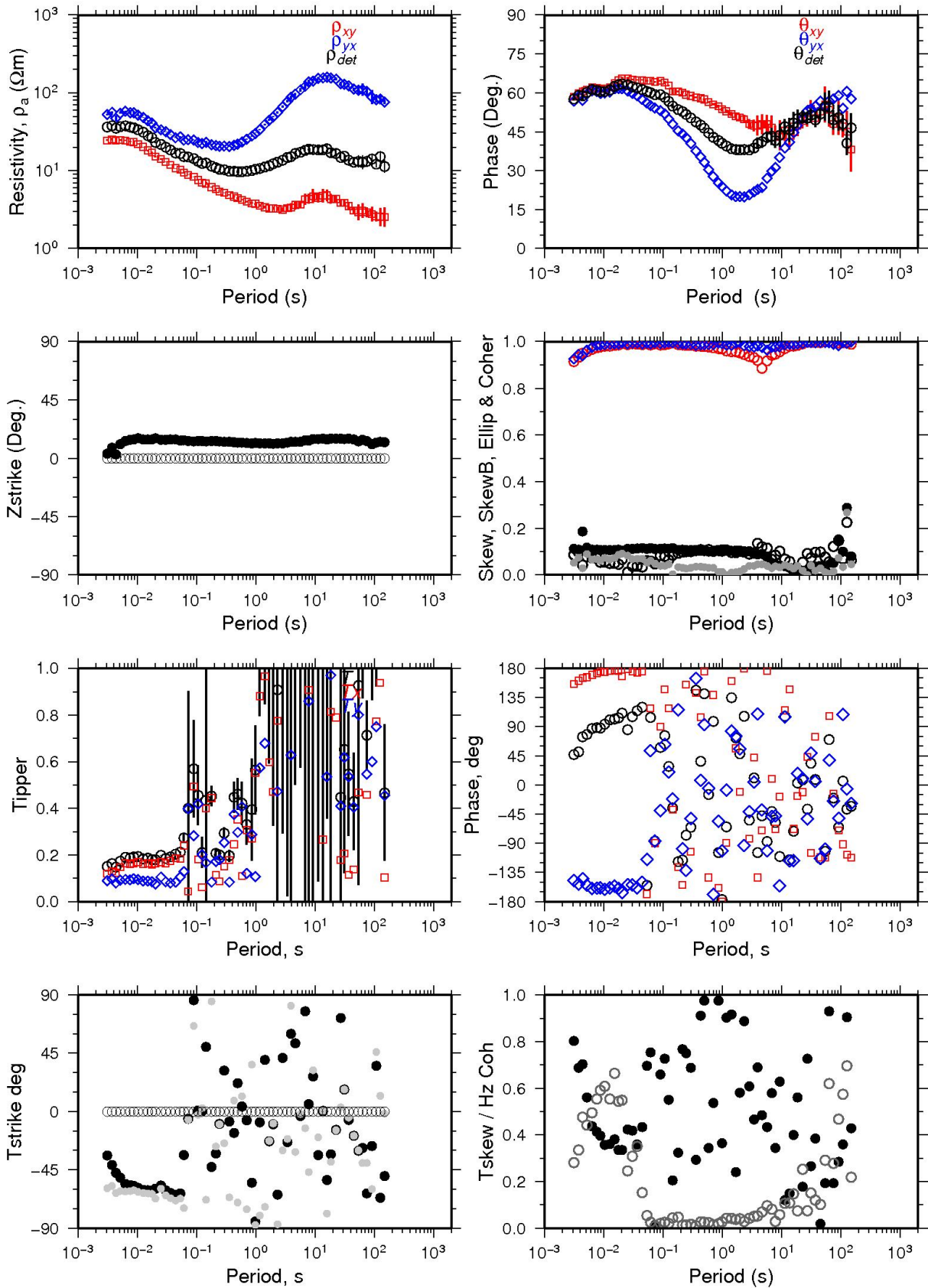
pak

Skrá: PAK53.EDI



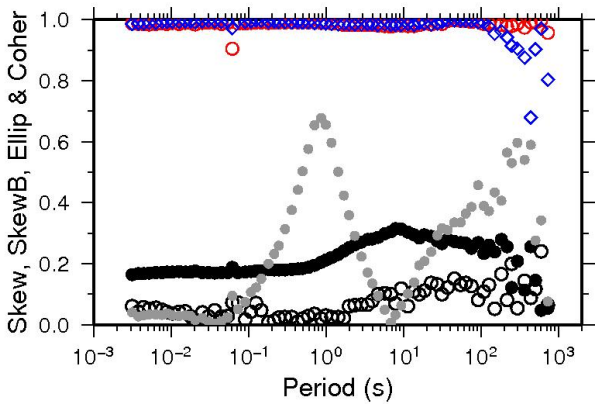
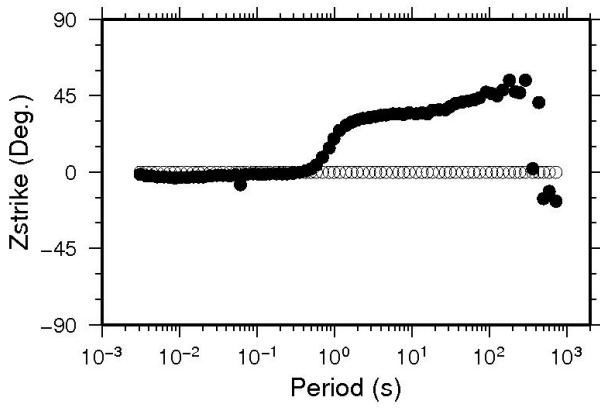
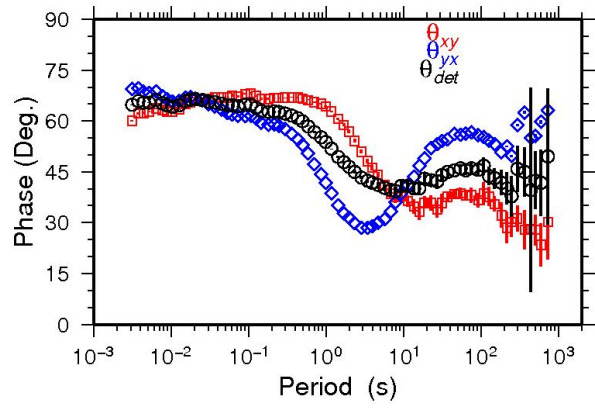
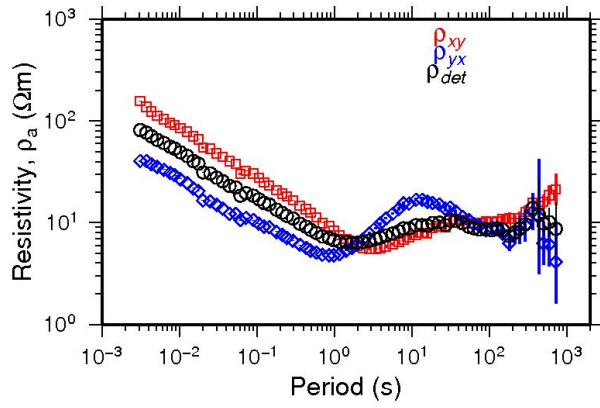
PKM

Skrá: PAK55R.EDI



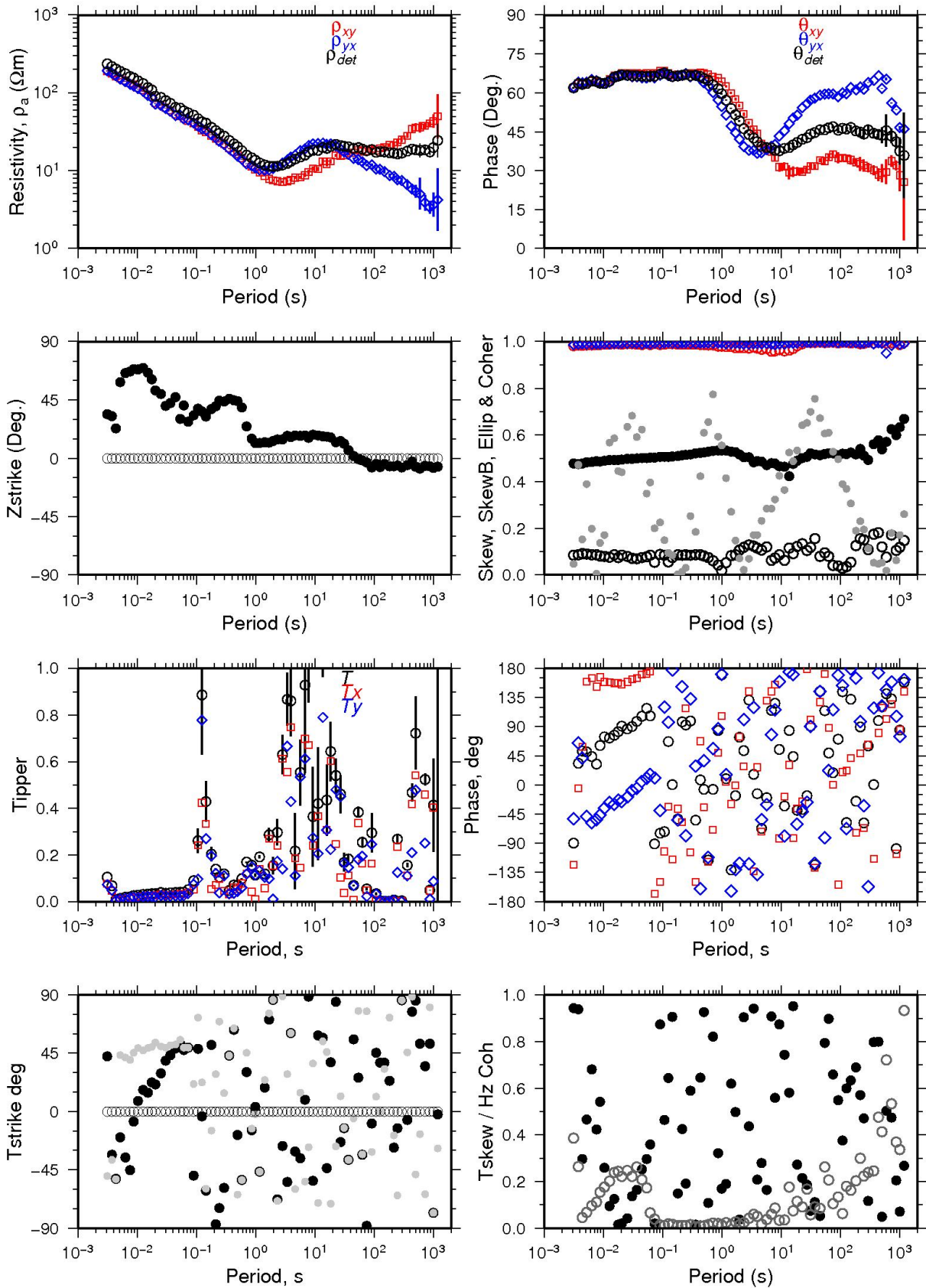
PAK

Skrá: PAK56.EDI



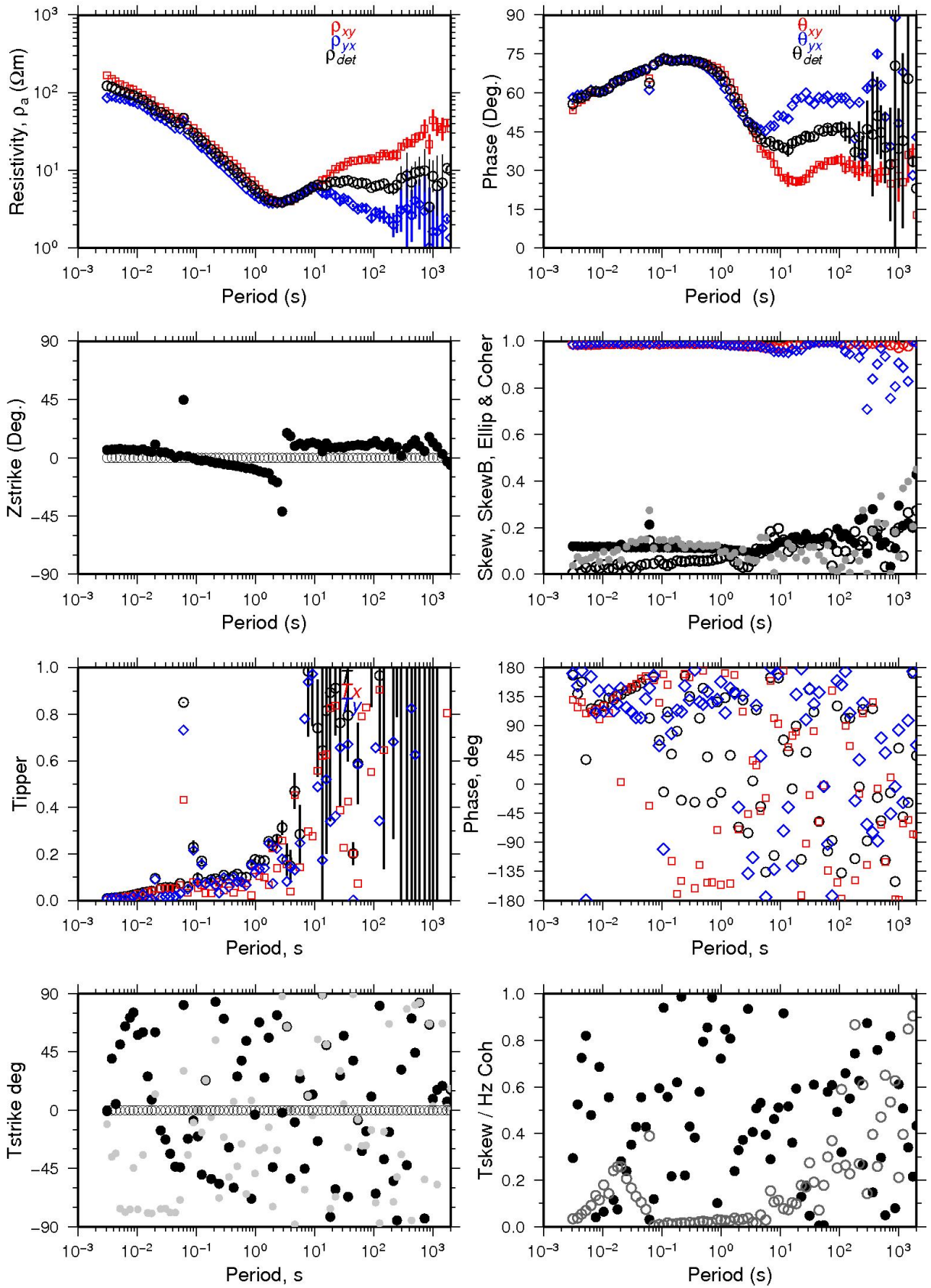
Pak

Skrá: PAK57.EDI



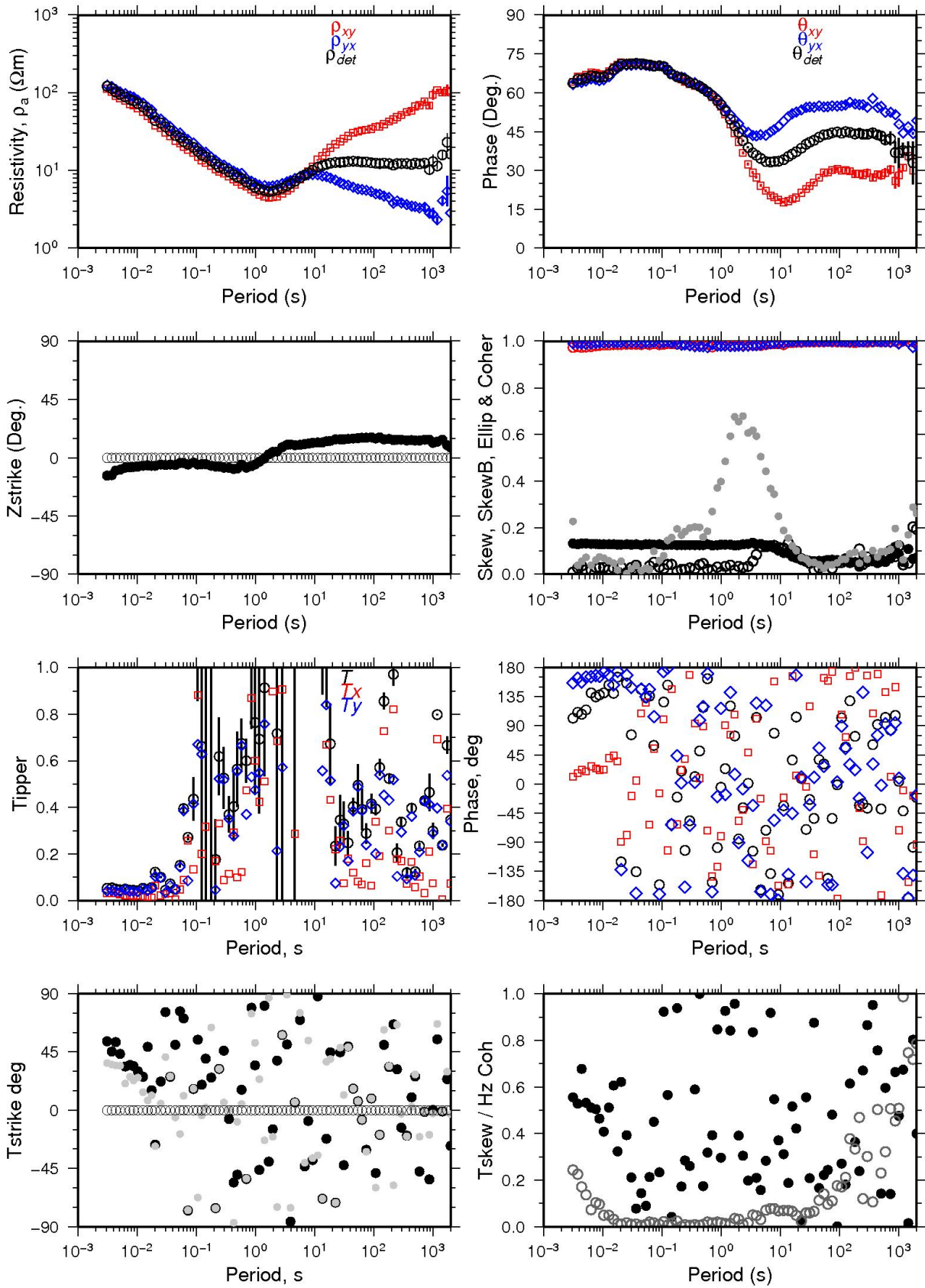
pak

Skrá: PAK58.EDI



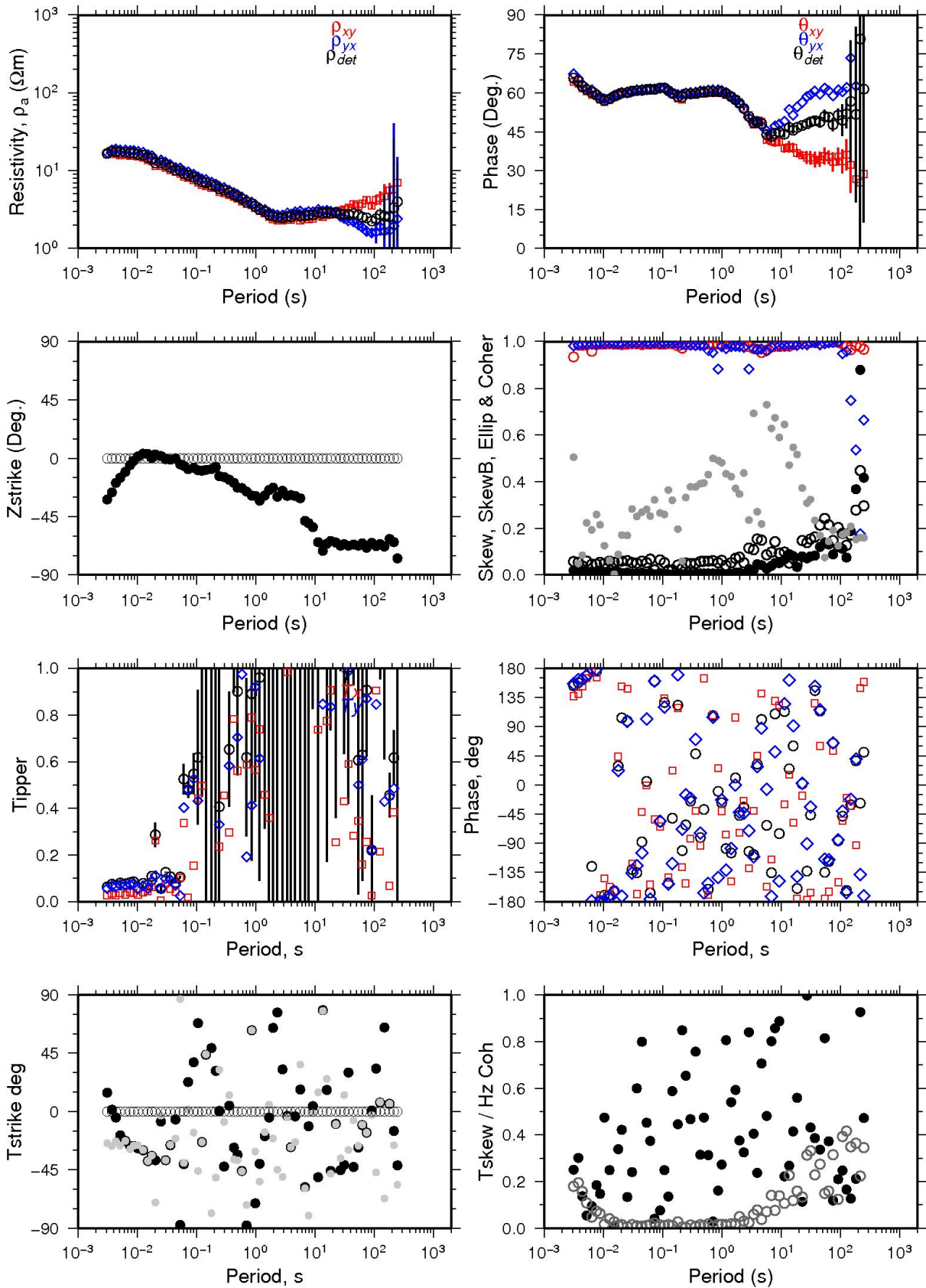
Pak

Skrá: PAK59.EDI



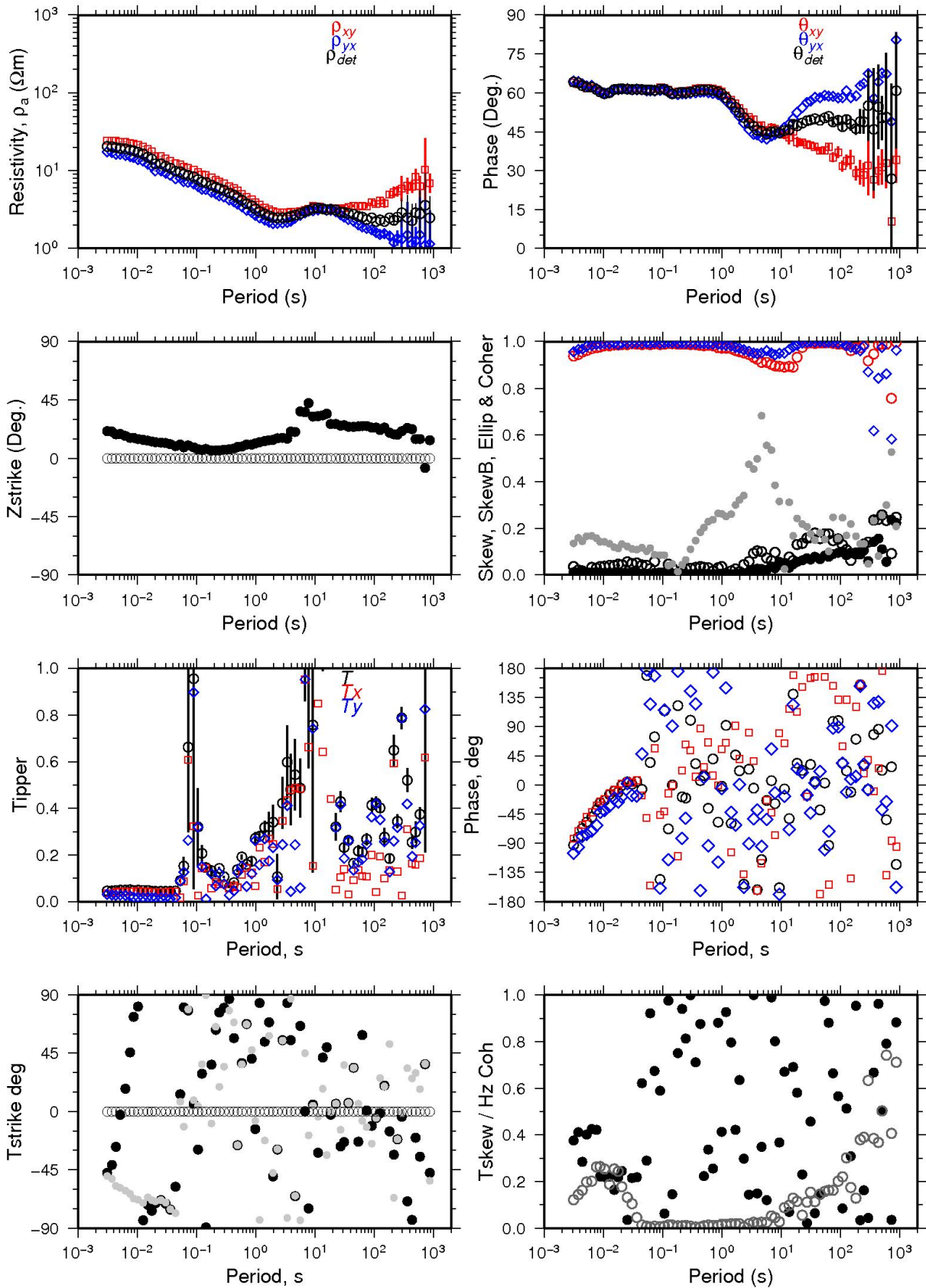
PAK

Skrá: PAK60.EDI



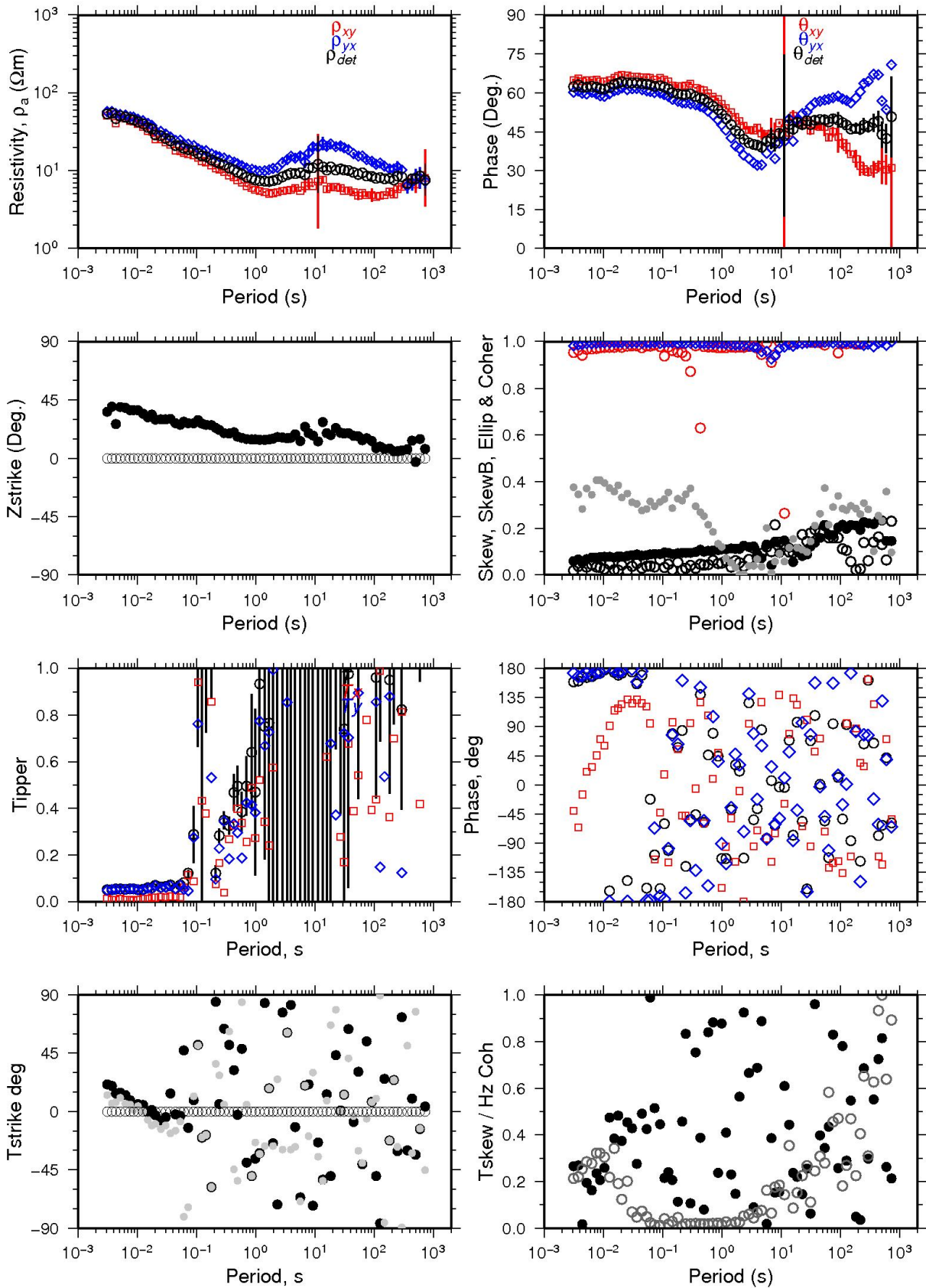
PAK

Skrá: PAK61.EDI



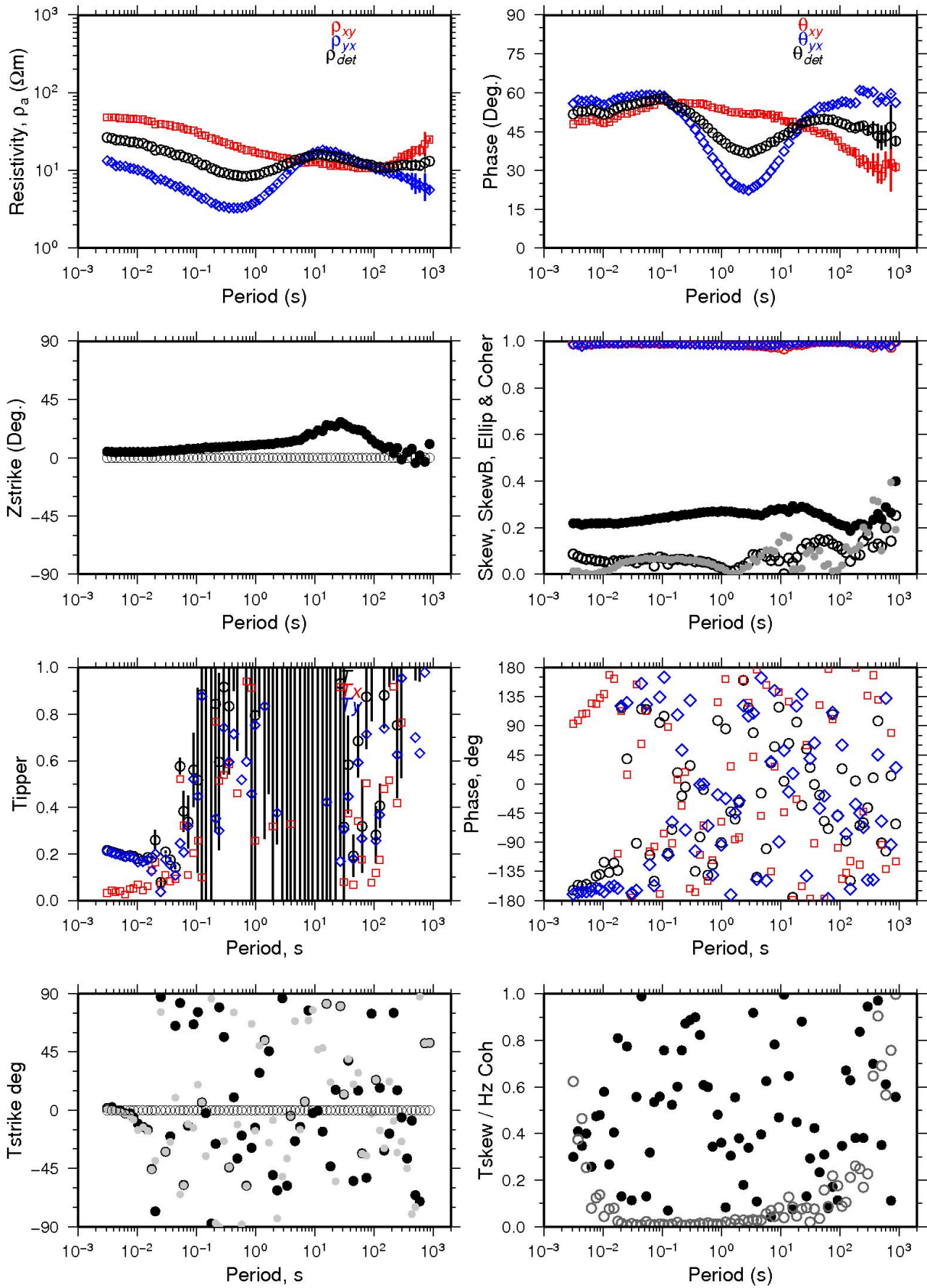
pkm

Skrá: PAK62.EDI



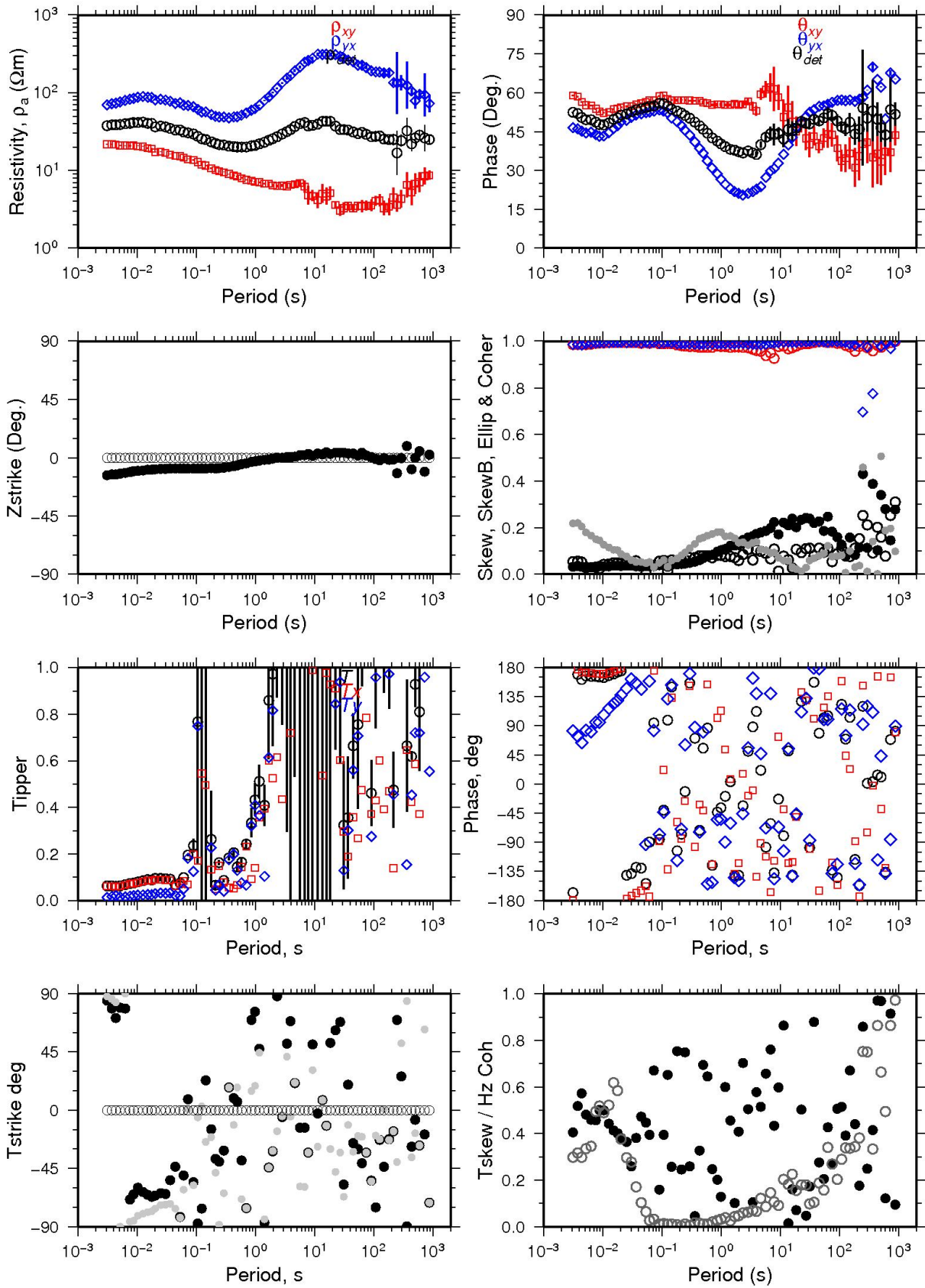
PAK

Skrá: PAK63.EDI



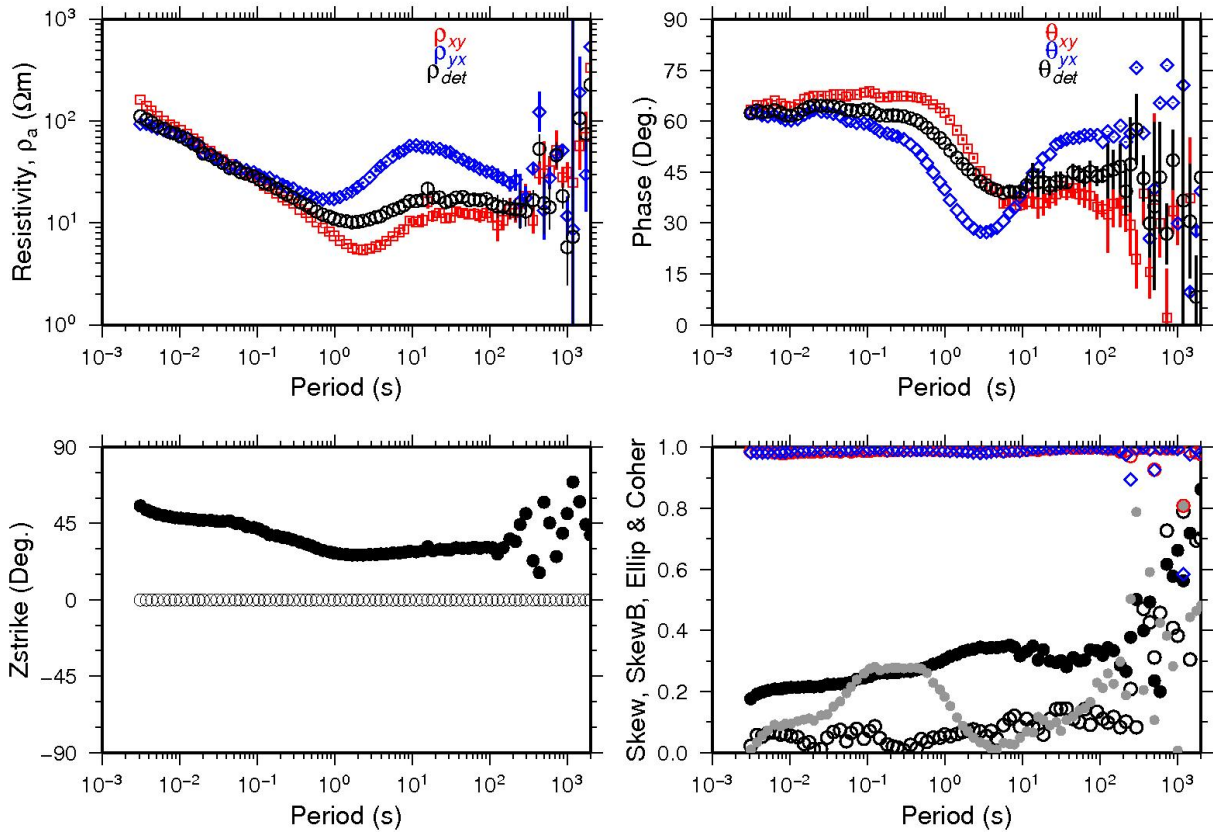
PK6

Skrá: PAK64.EDI



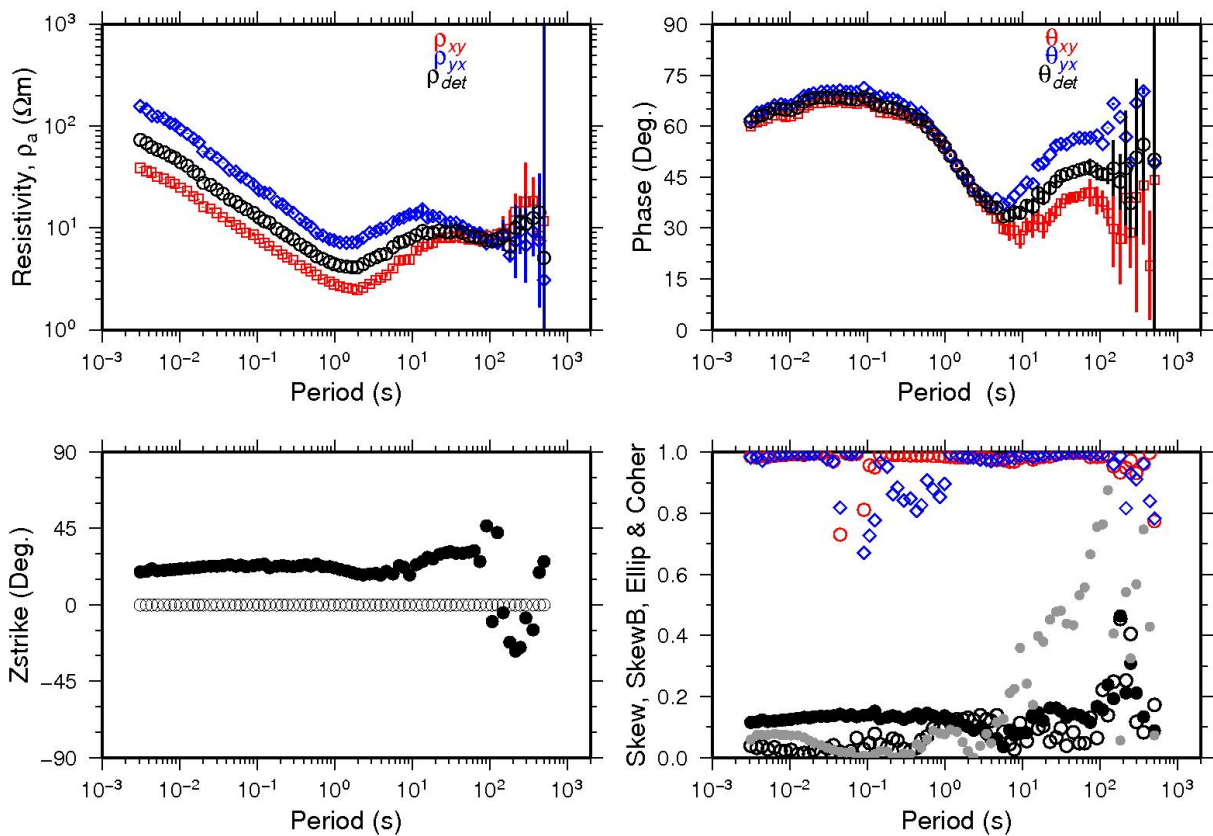
65P

Skrá: PAK65.EDI



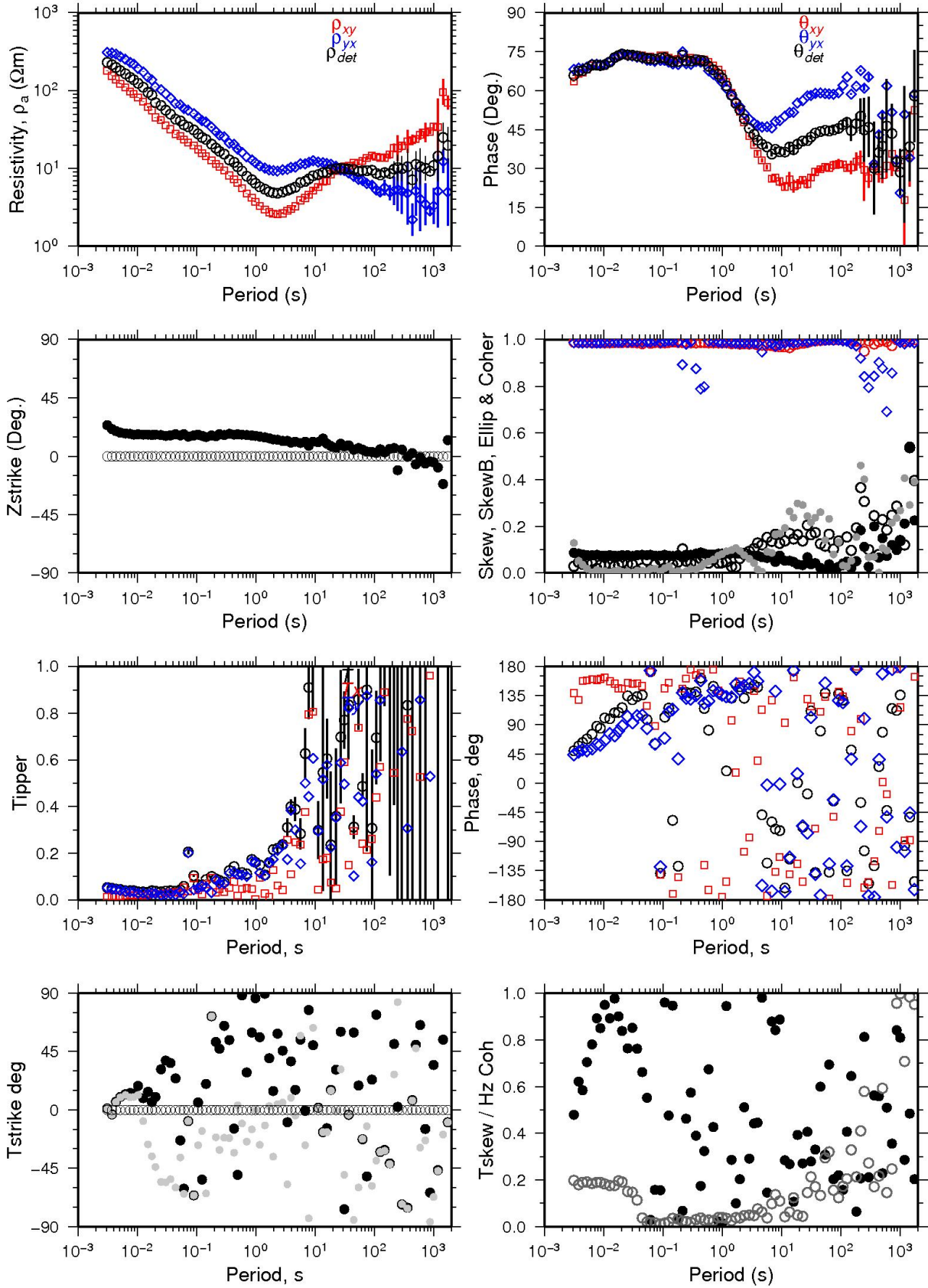
PAK

Skrá: PAK66.EDI



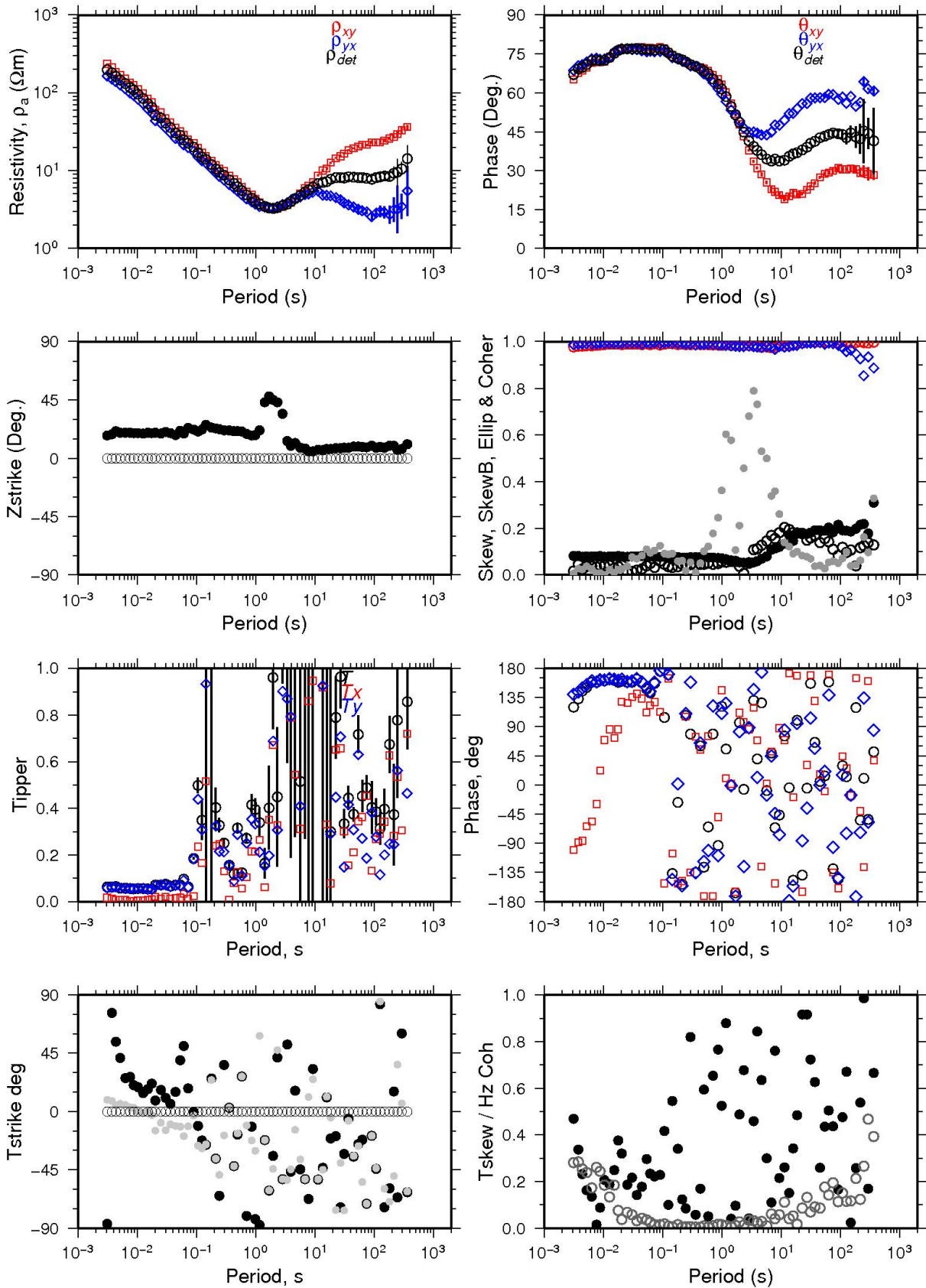
pak

Skrá: PAK67.EDI



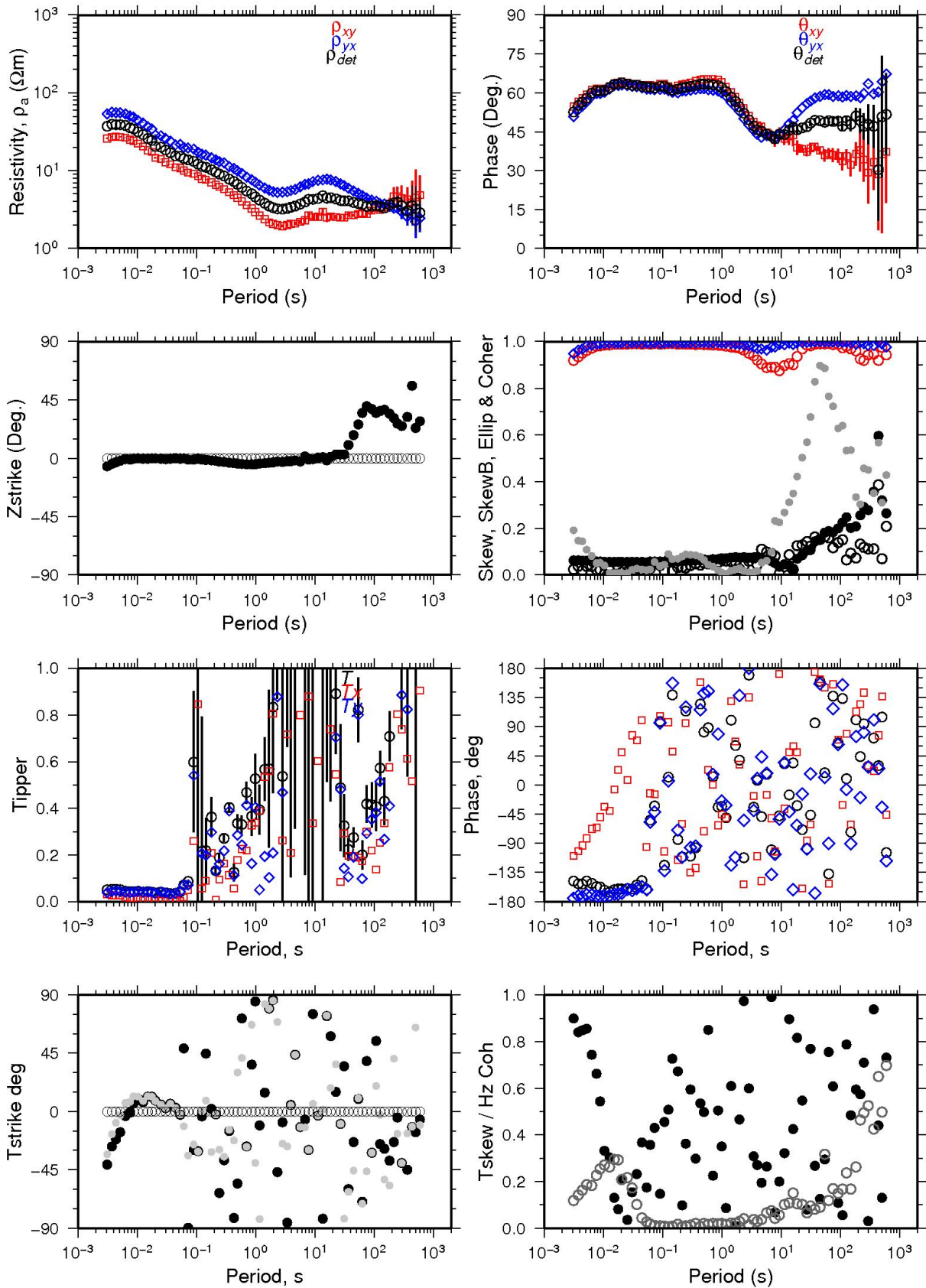
Pak

Skrá: PAK68.EDI



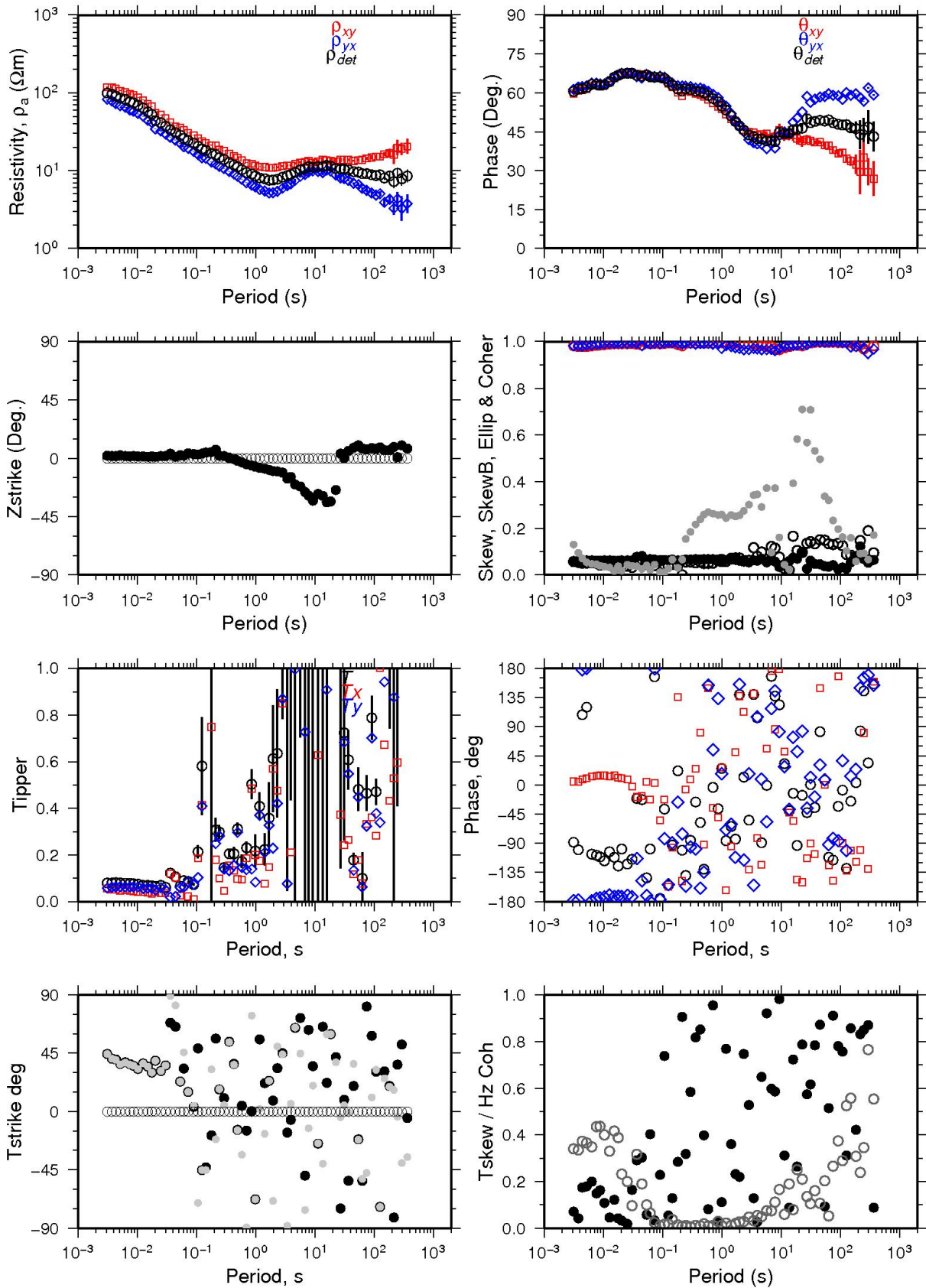
PAK

Skrá: PAK69.EDI



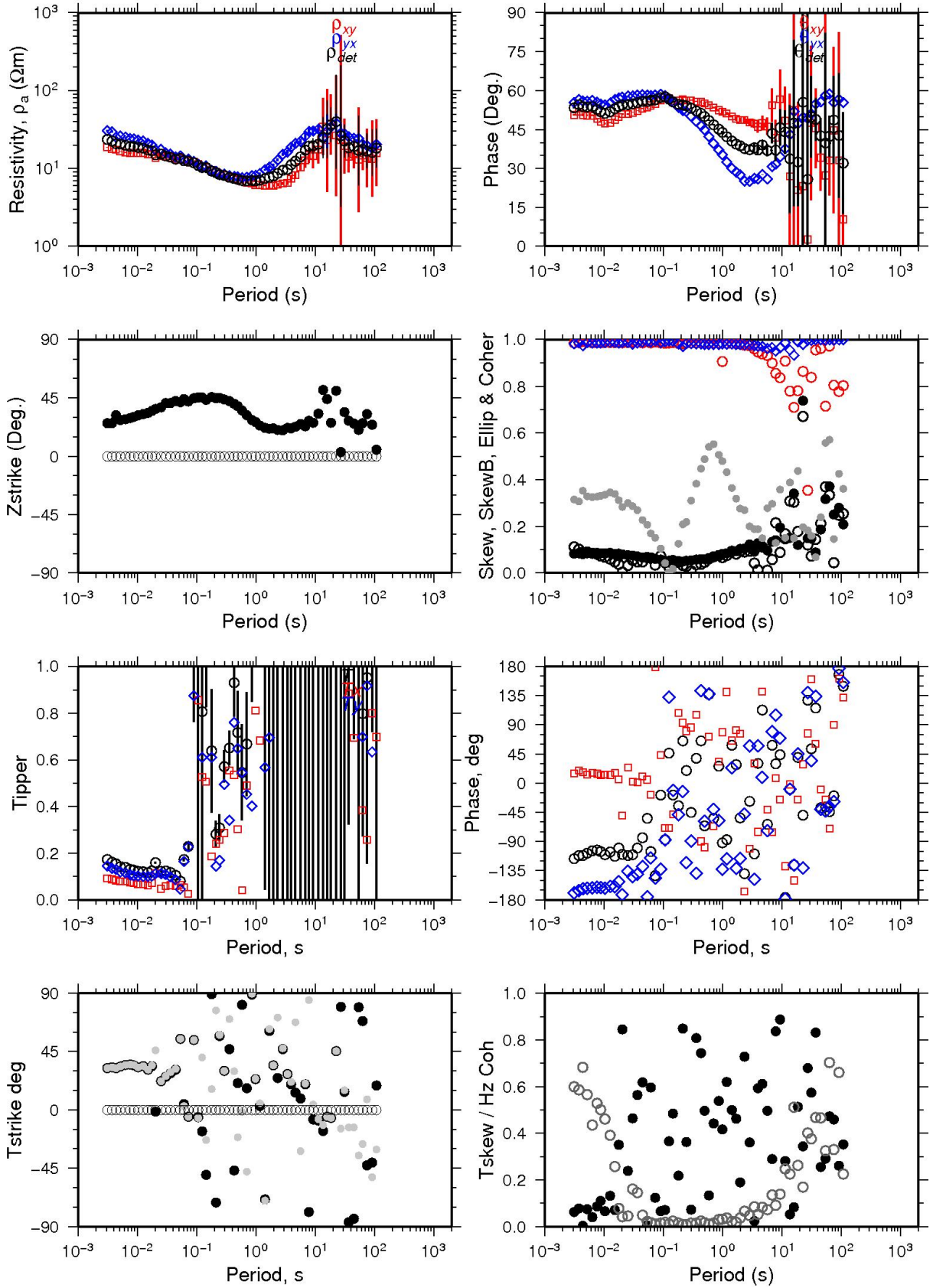
pkm

Skrá: PAK70.EDI



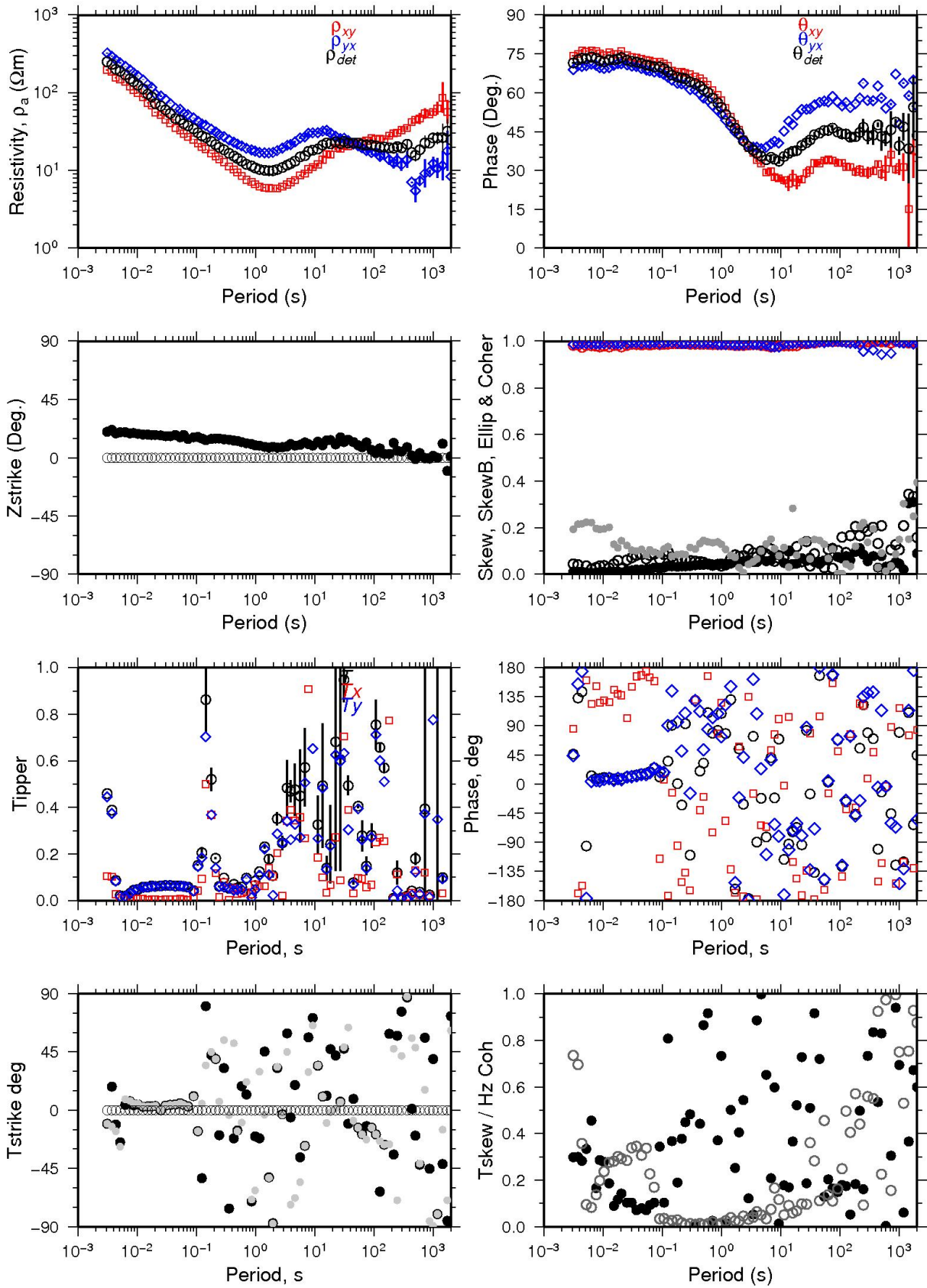
PAK

Skrá: PAK71.EDI



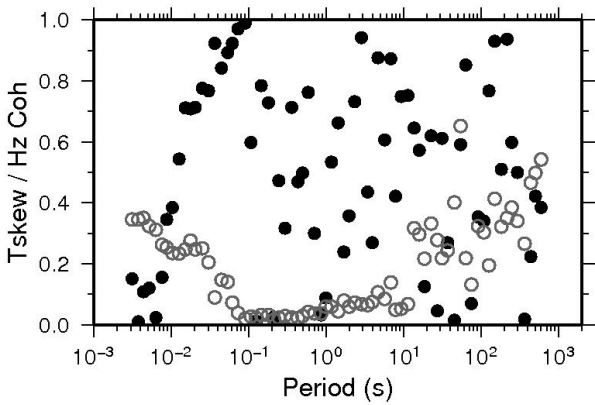
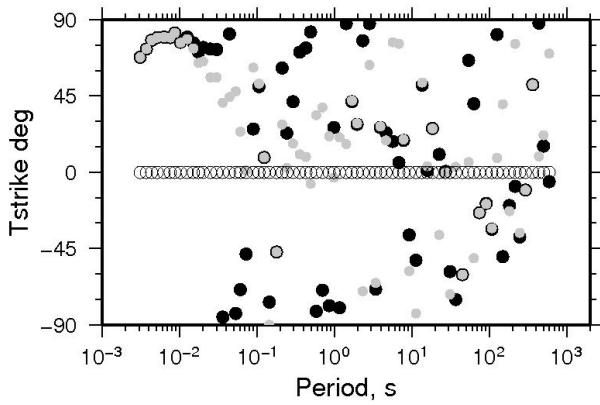
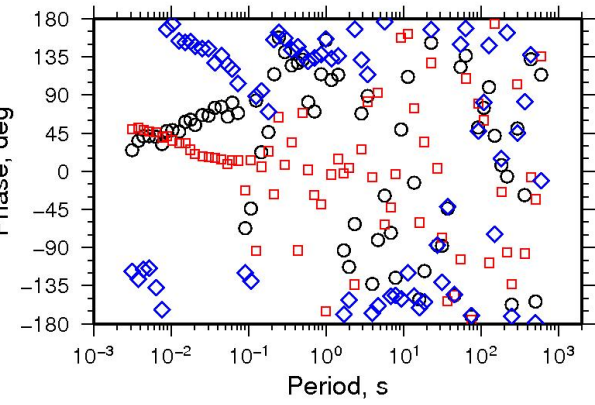
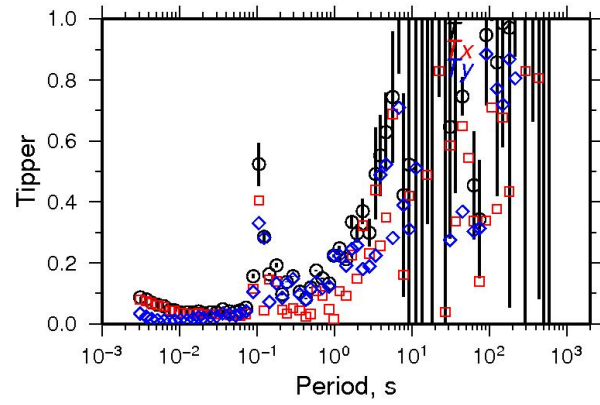
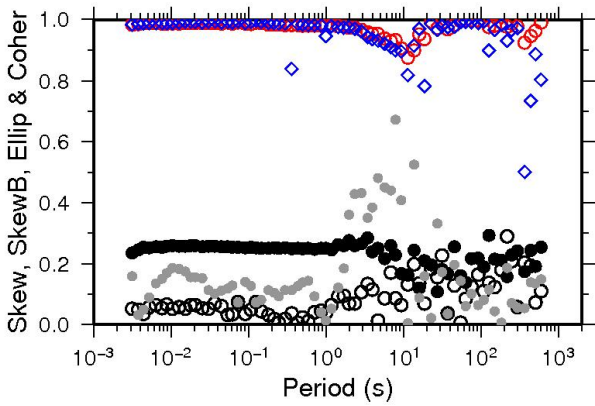
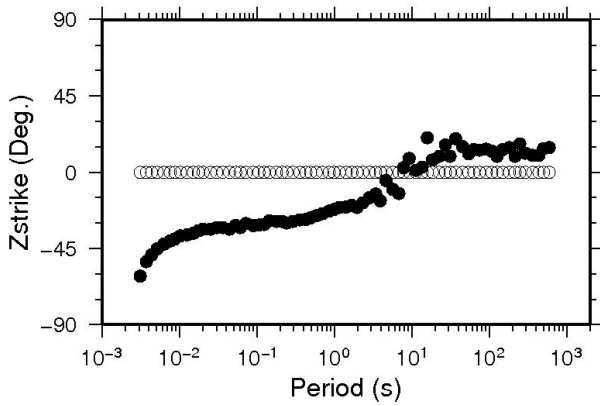
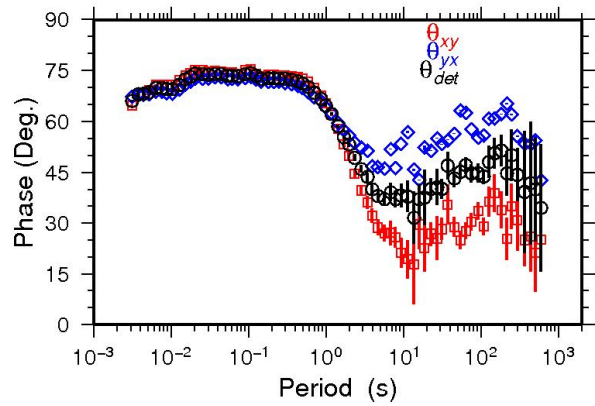
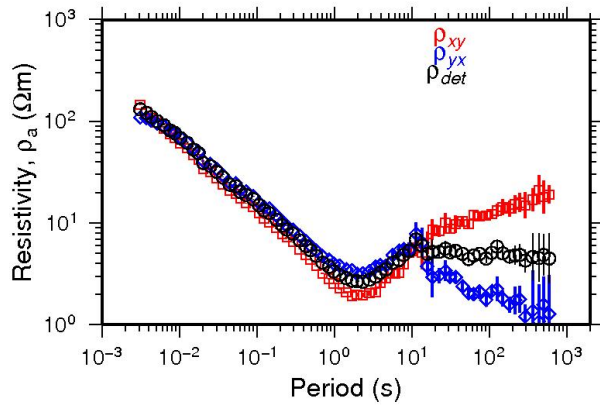
PAK

Skrá: PAK72.EDI



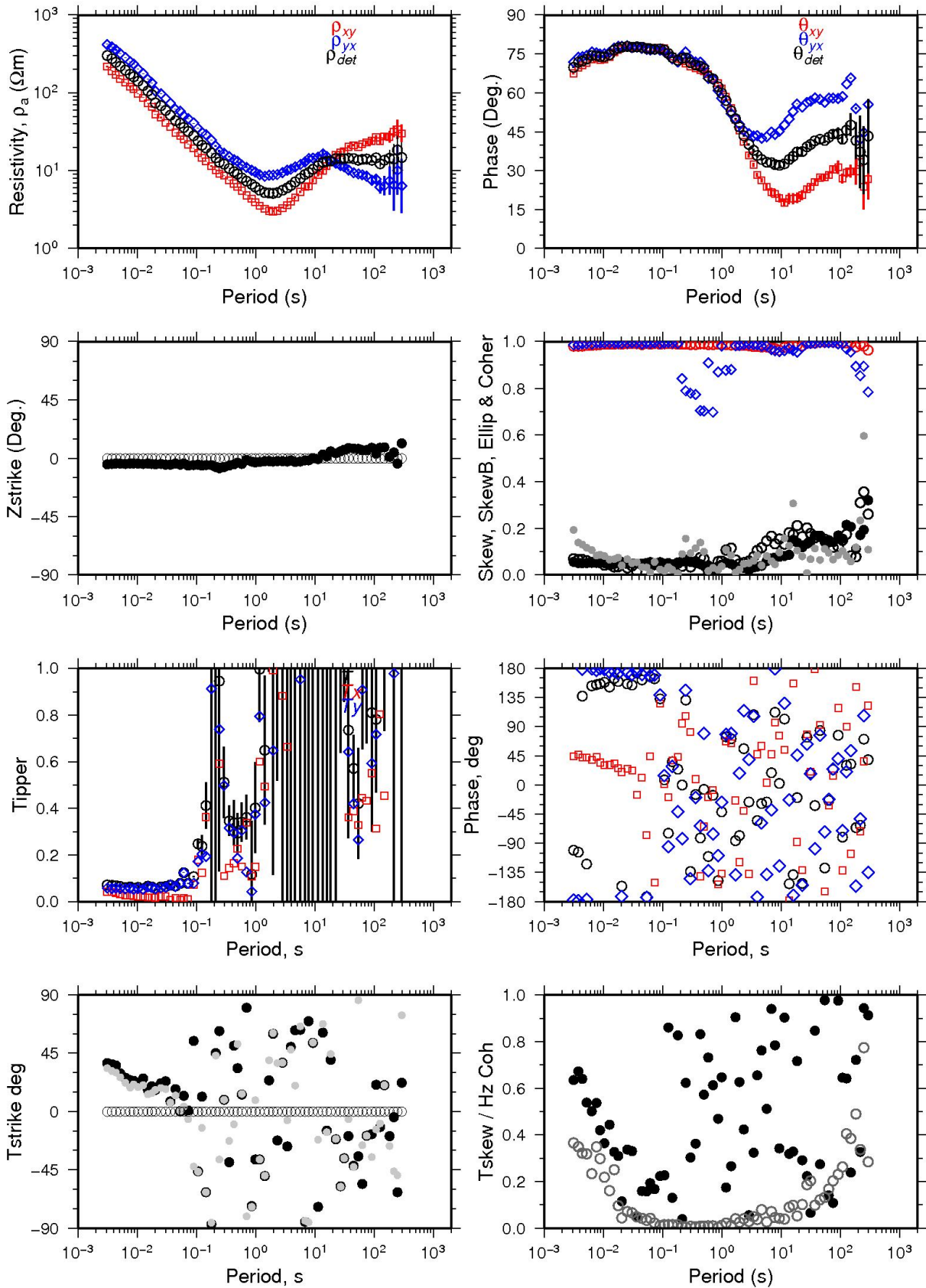
pak

Skrá: PAK73.EDI



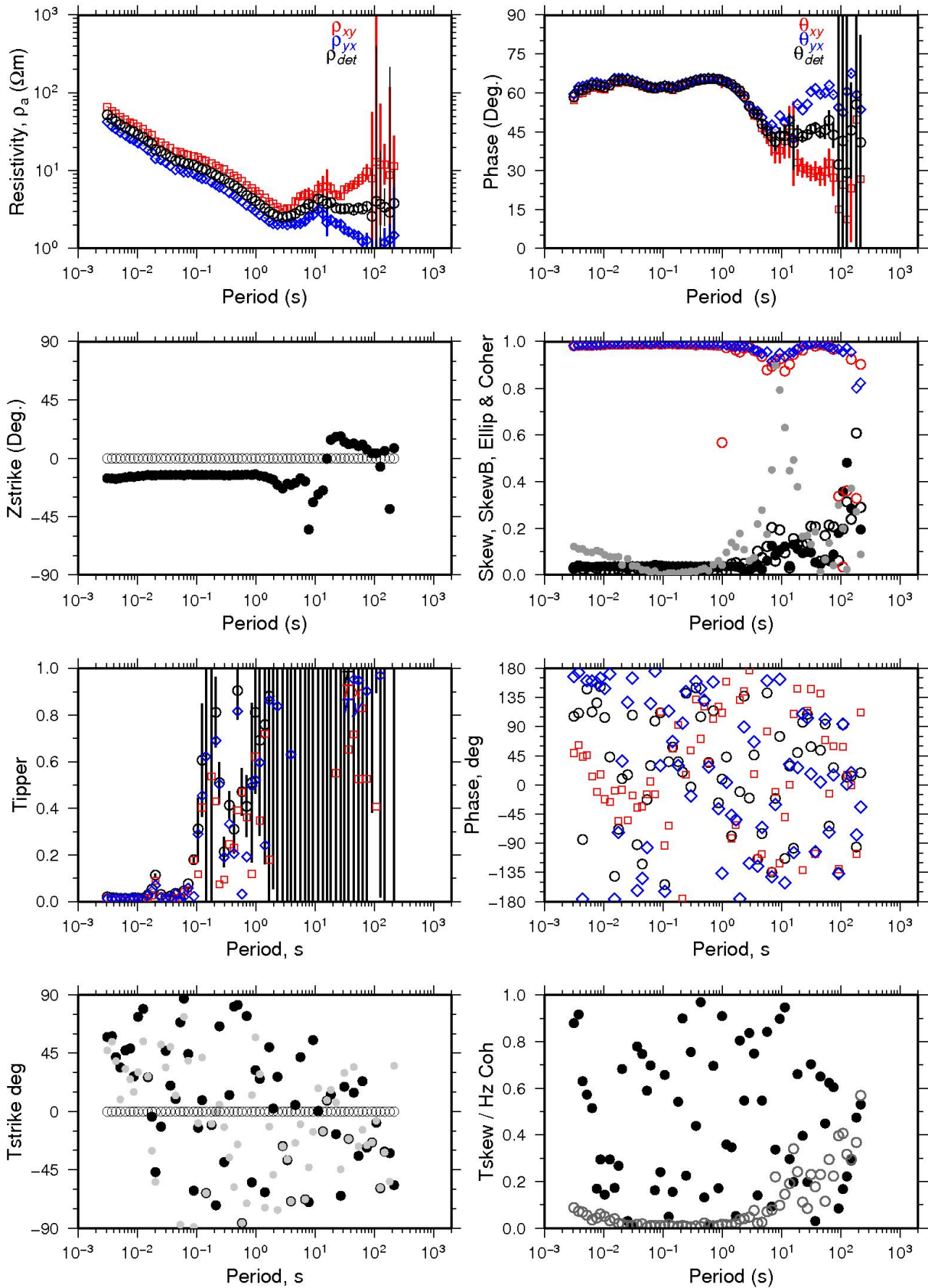
PAK

Skrá: PAK74.EDI



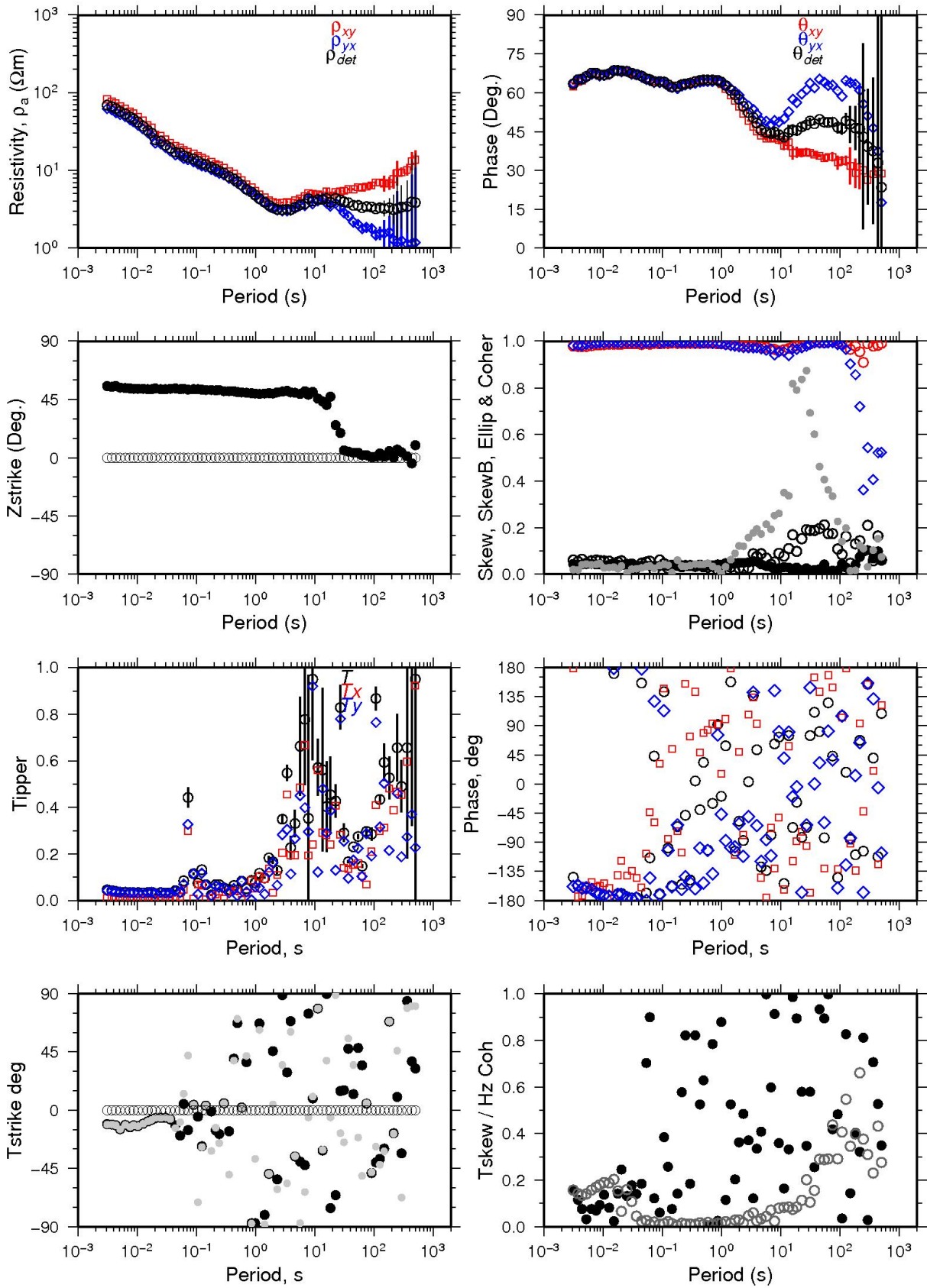
PAK

Skrá: PAK75.EDI



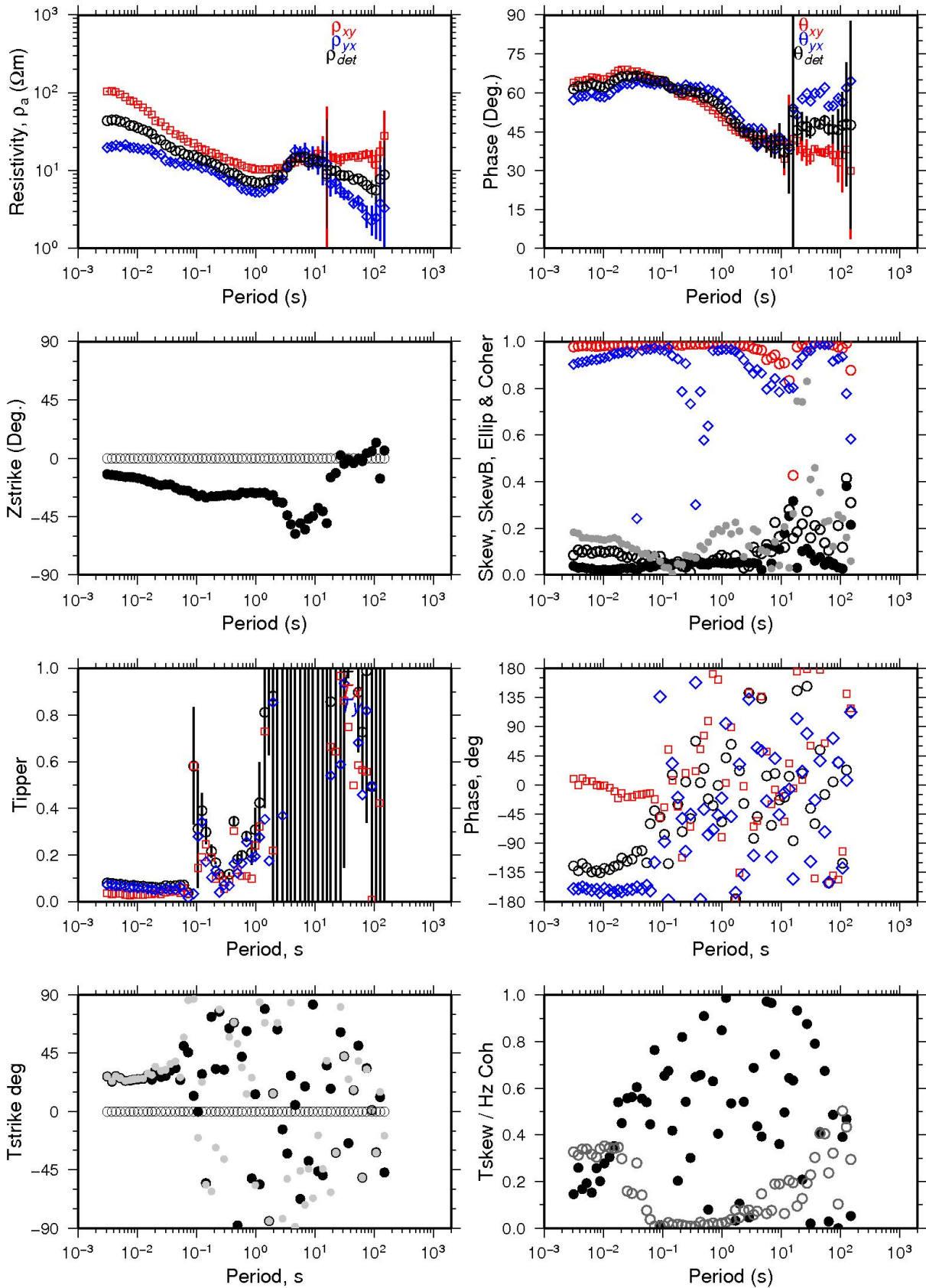
PAK

Skrá: PAK76.EDI



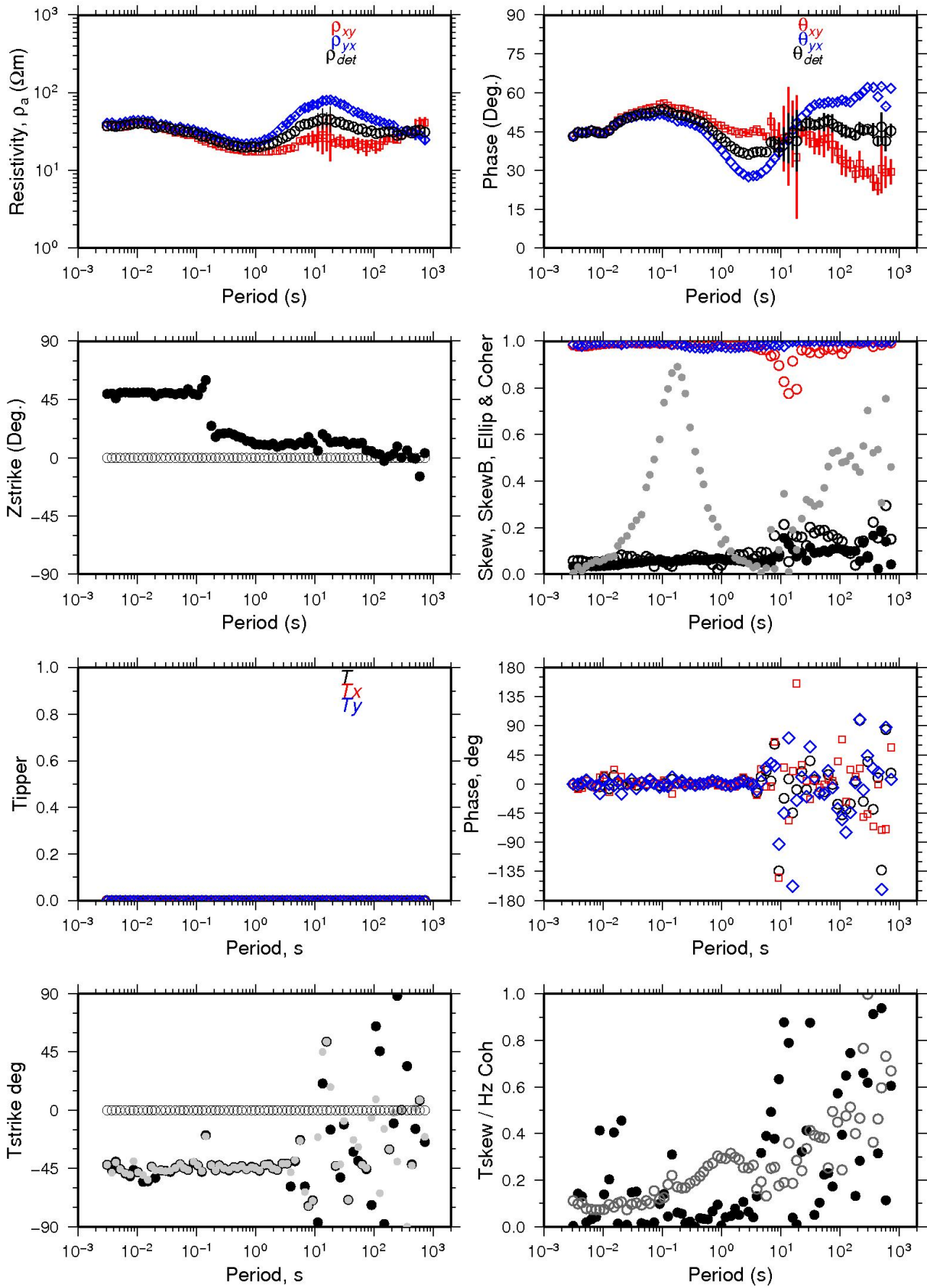
pkm

Skrá: PAK77.EDI



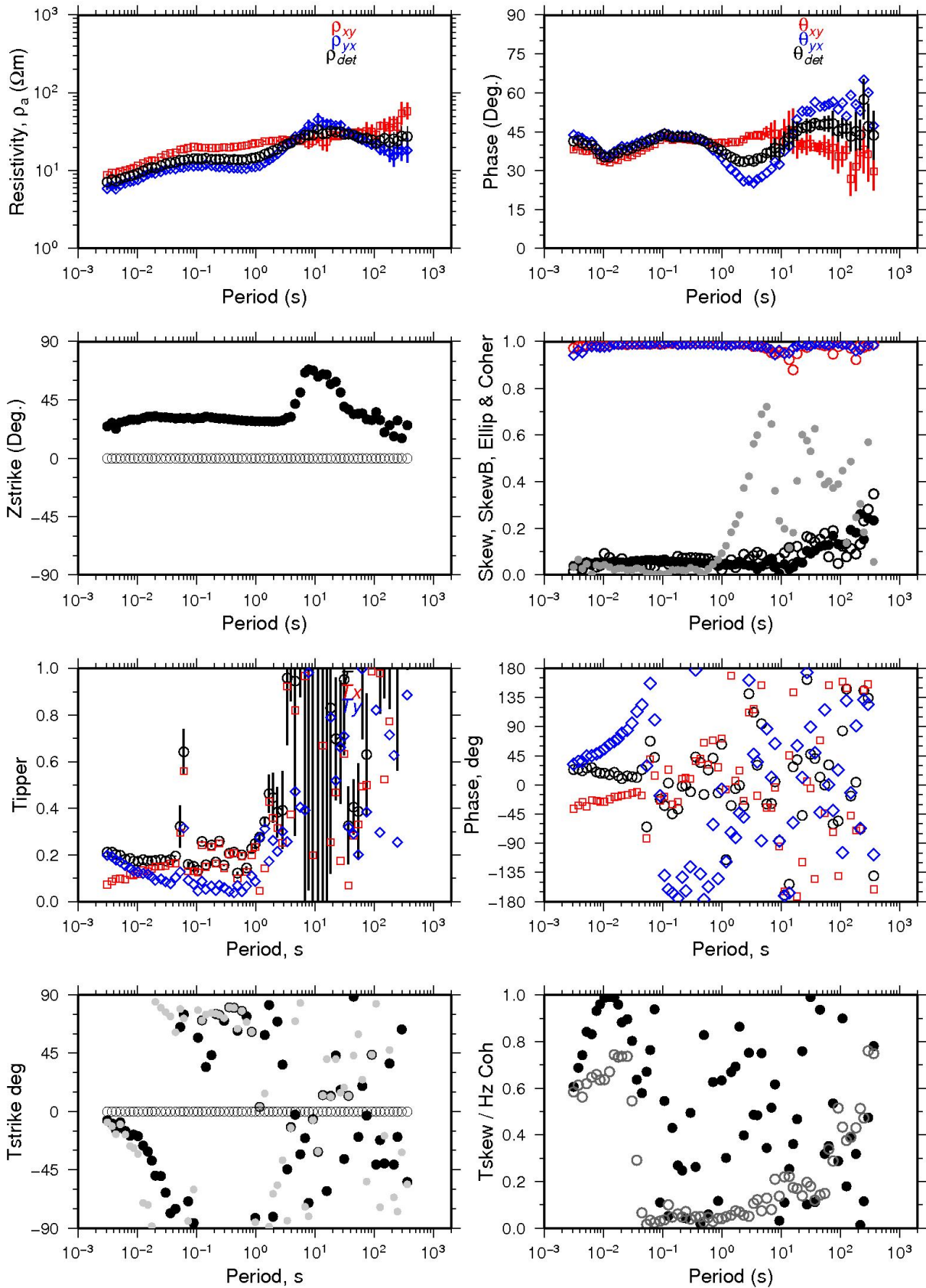
PAK

Skrá: PAK78.EDI



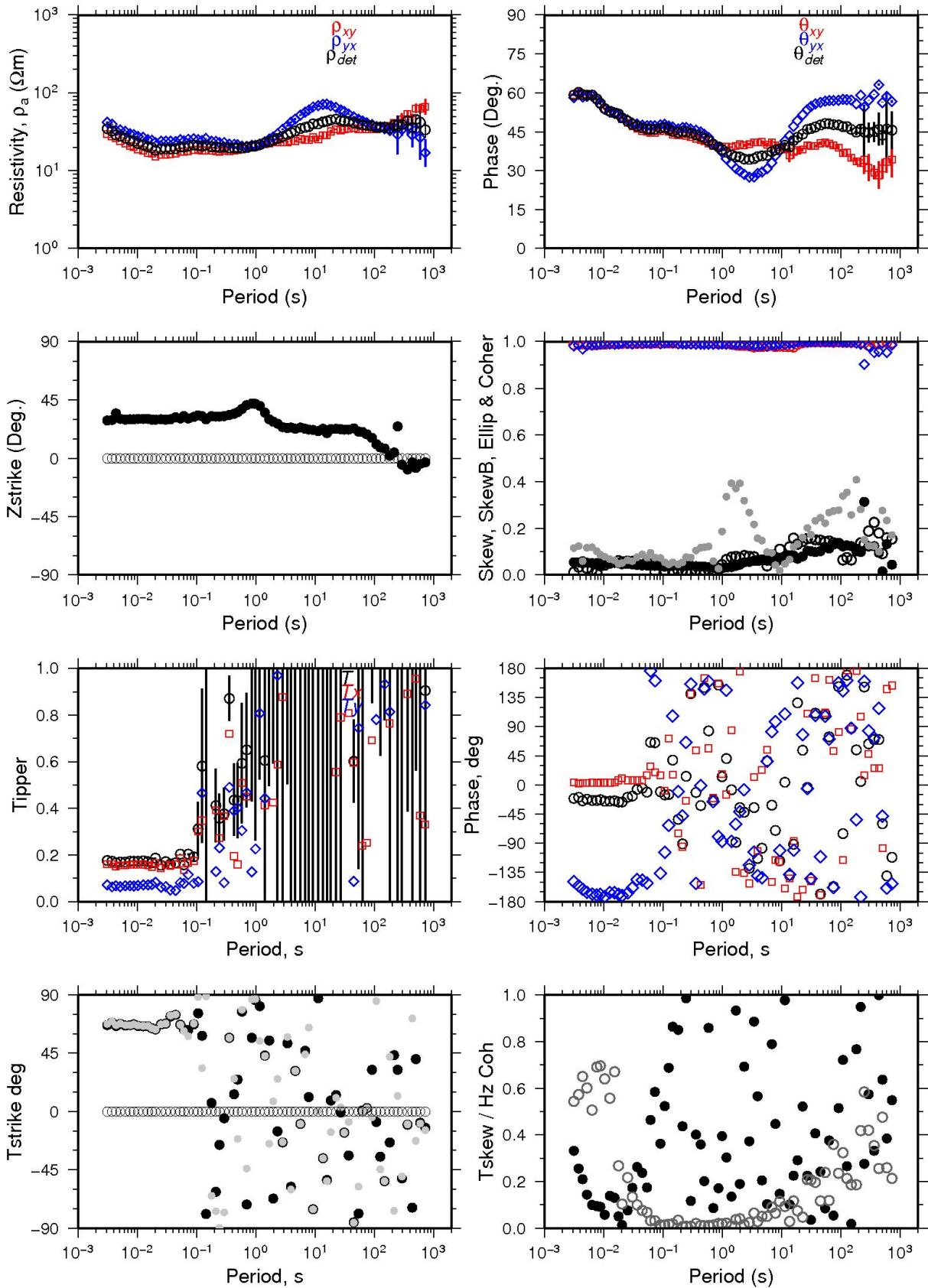
PK7

Skrá: PAK79R.EDI



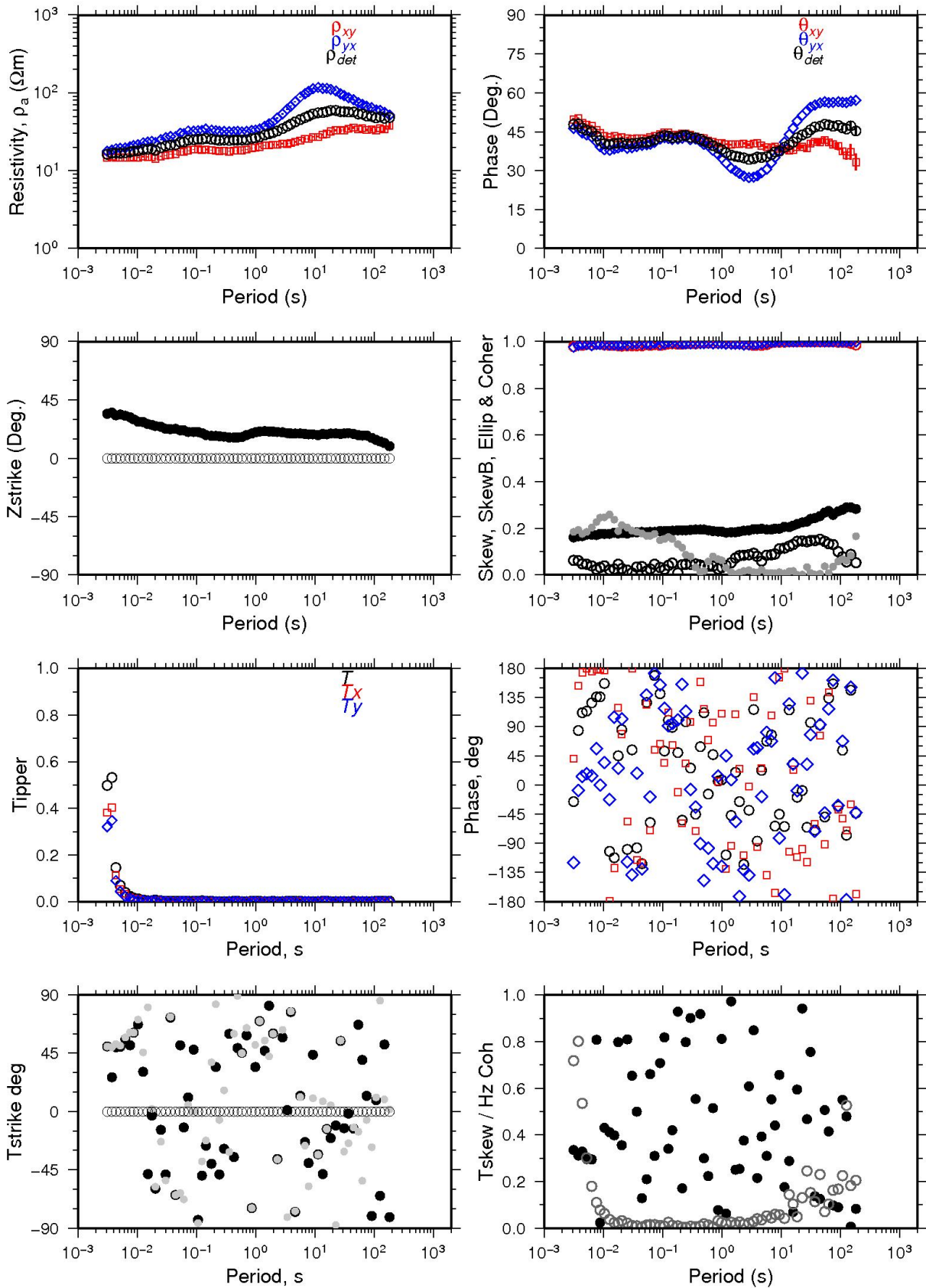
pak

Skrá: PAK80.EDI



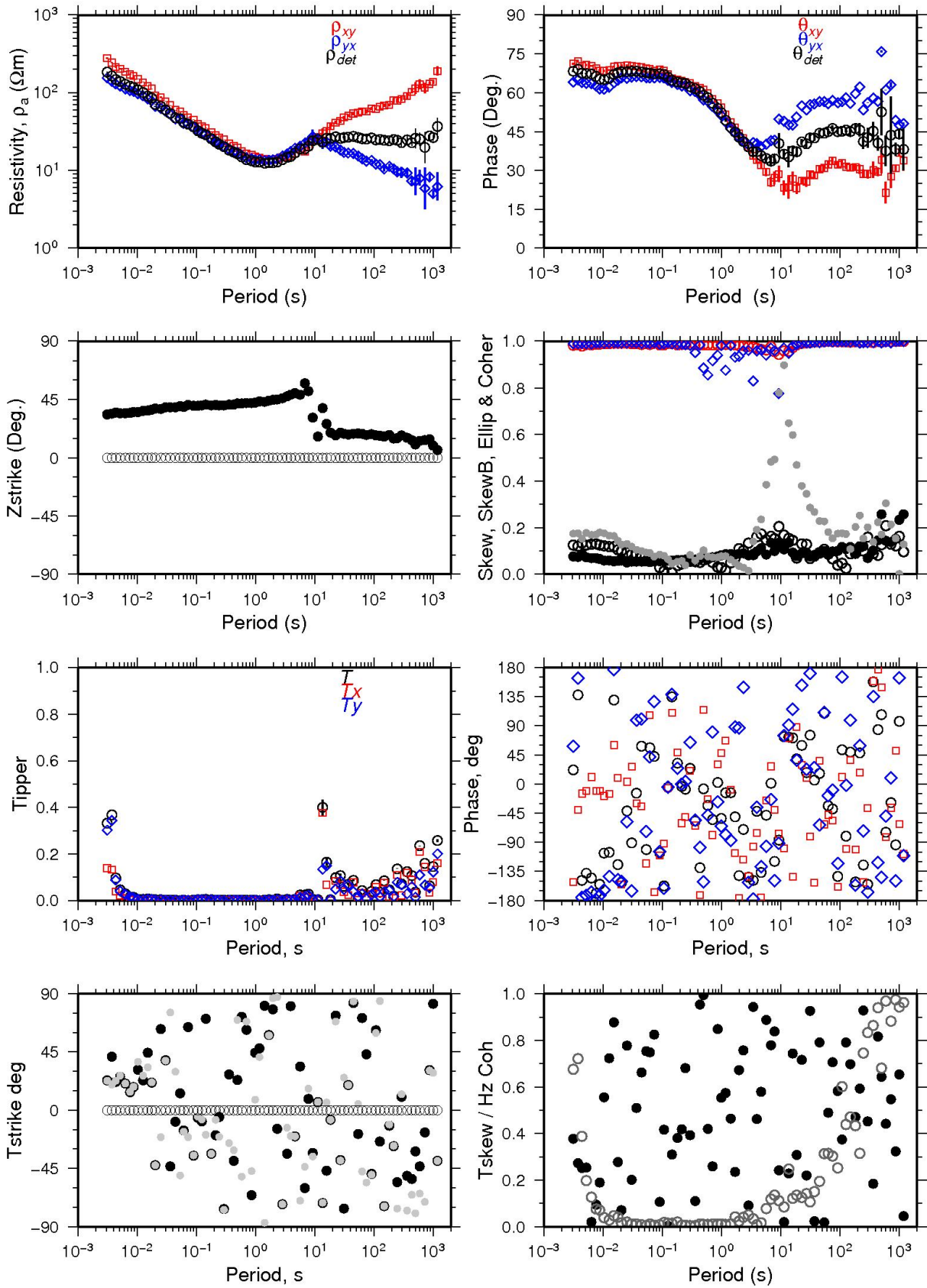
PAK

Skrá: PAK81.EDI



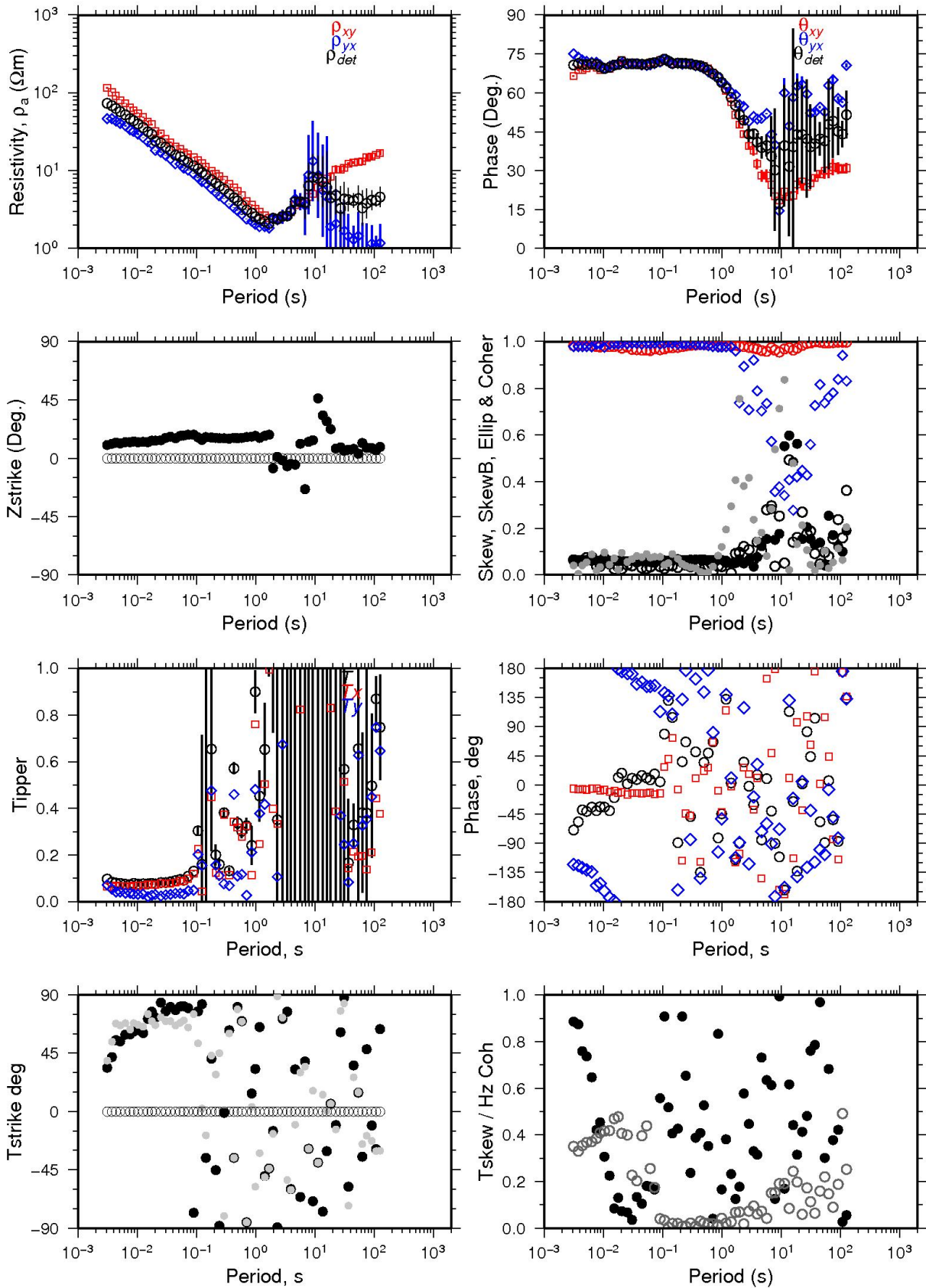
PAK

Skrá: PAK82.EDI



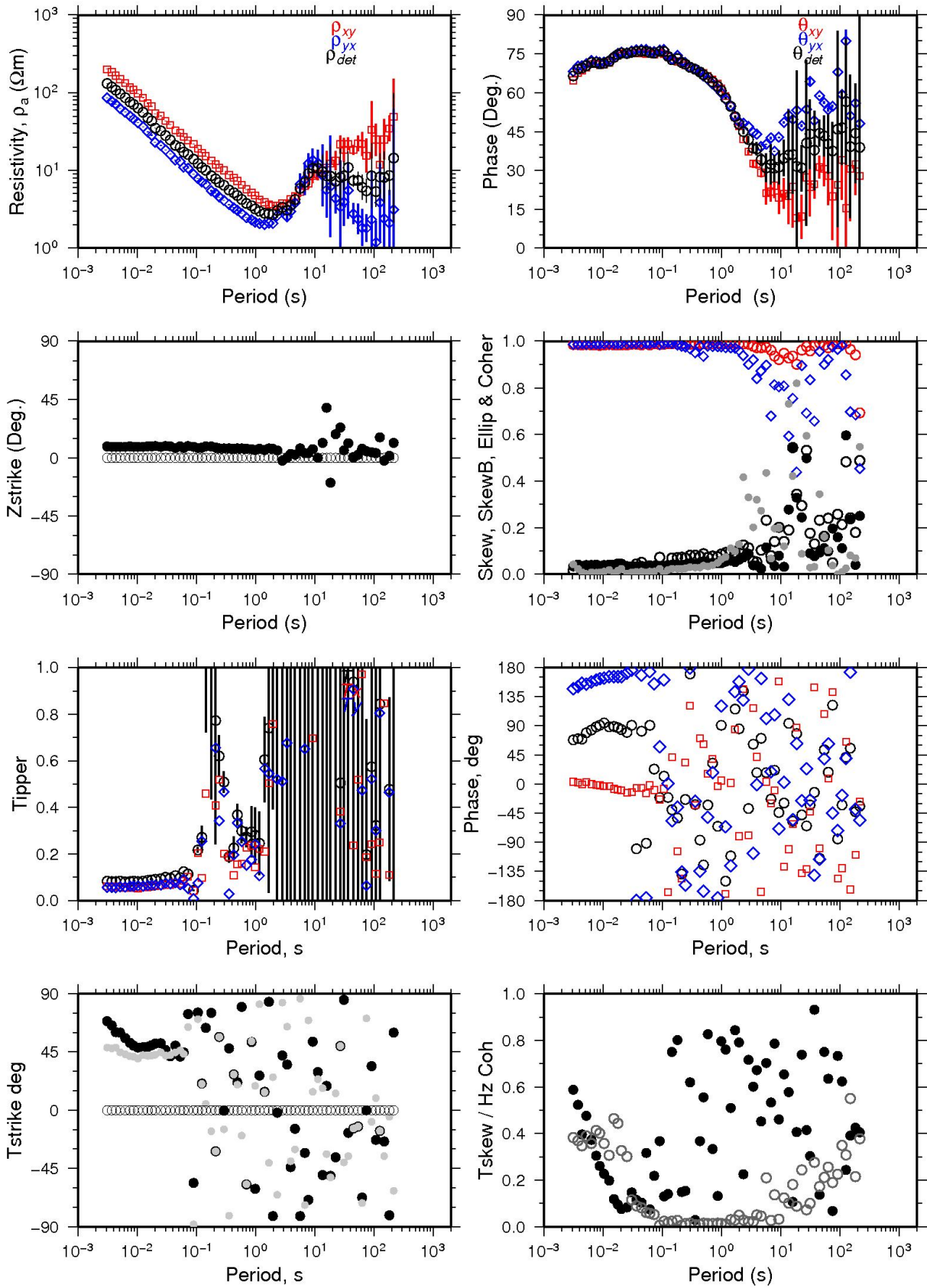
pak

Skrá: PAK83.EDI



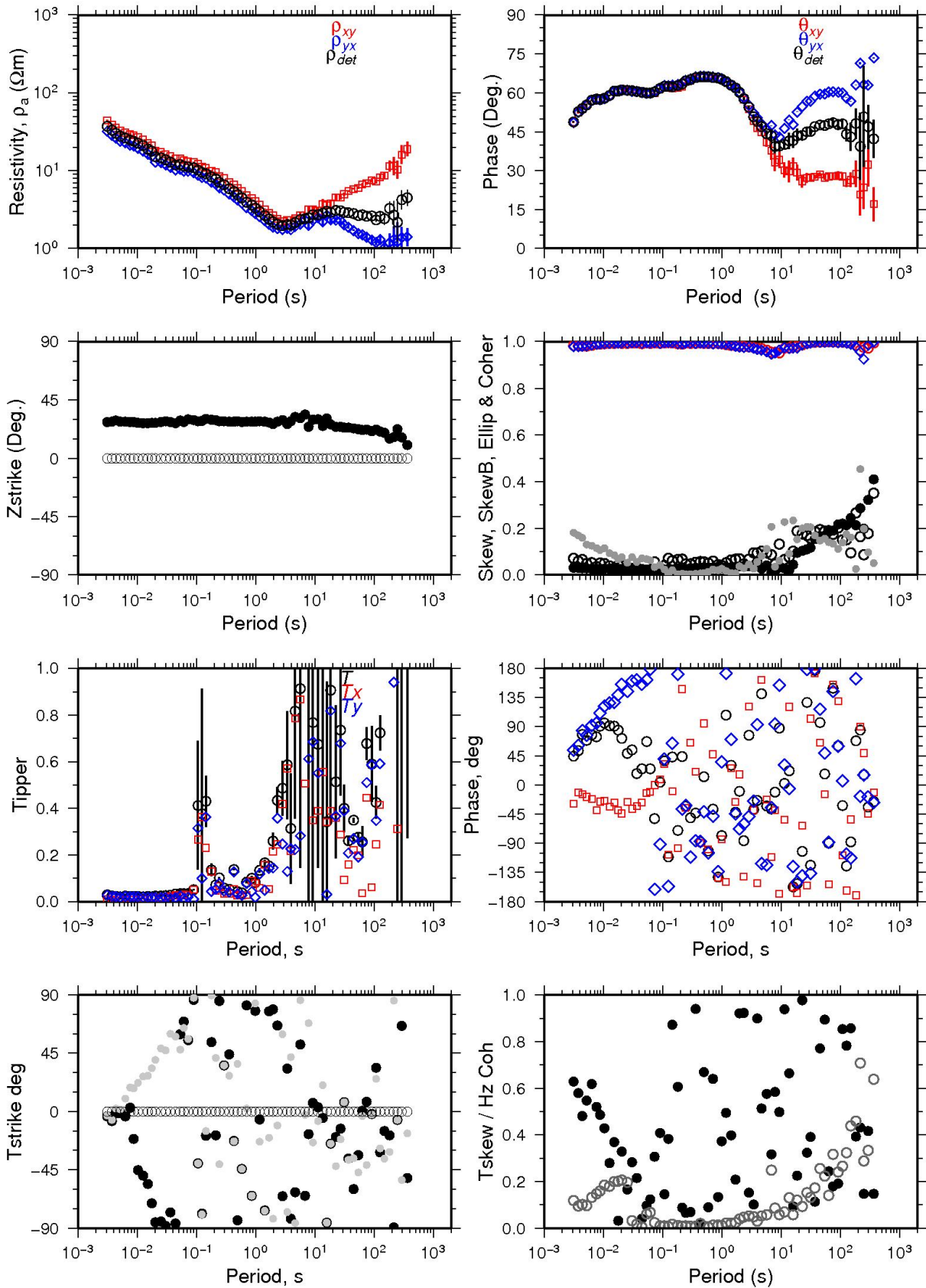
PAK

Skrá: PAK84.EDI



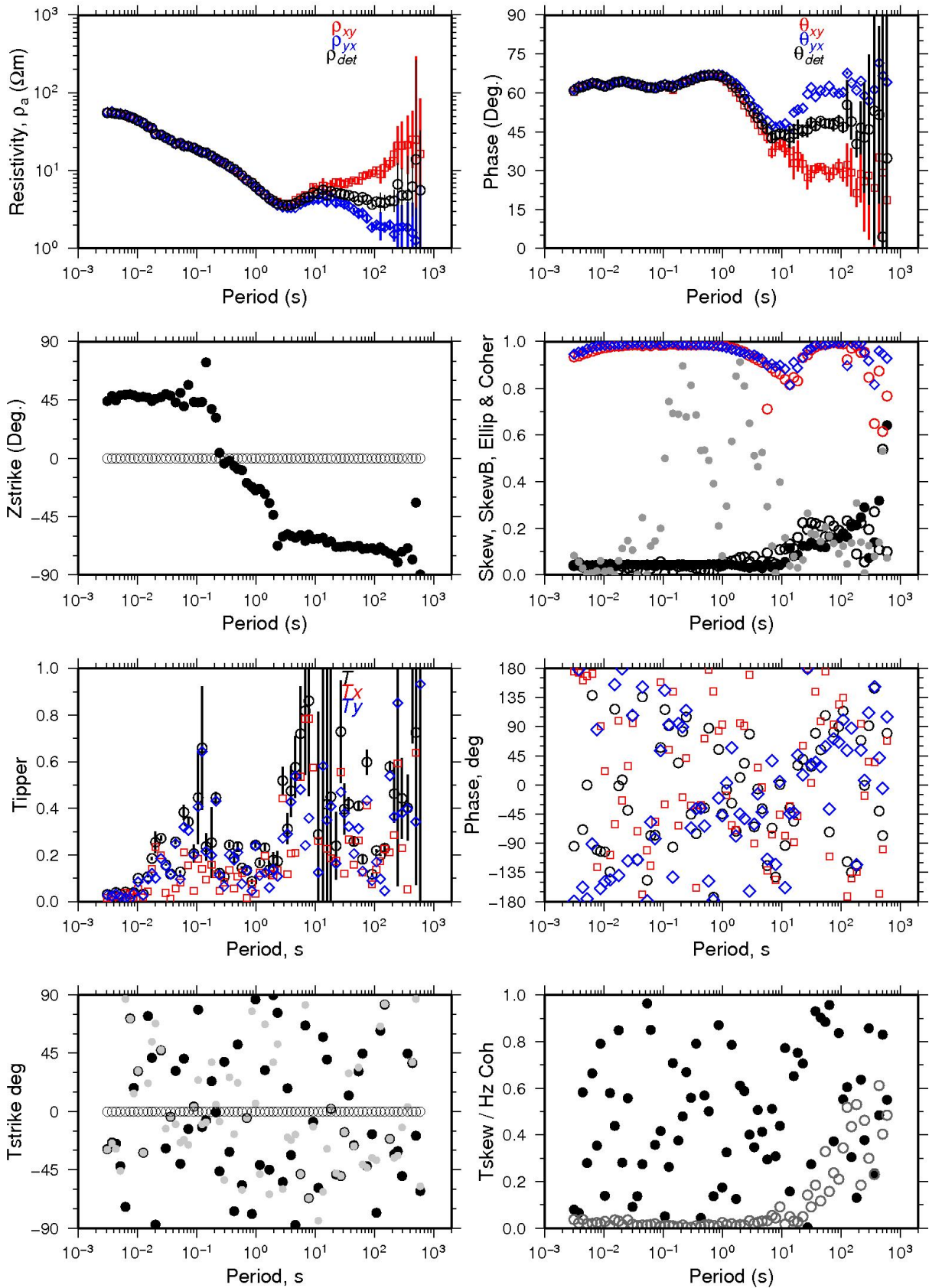
PAK

Skrá: PAK85.EDI



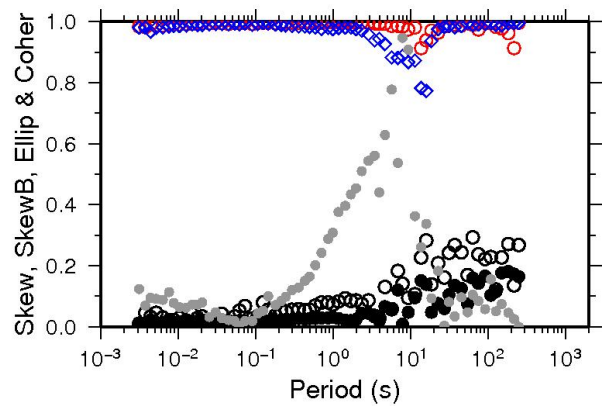
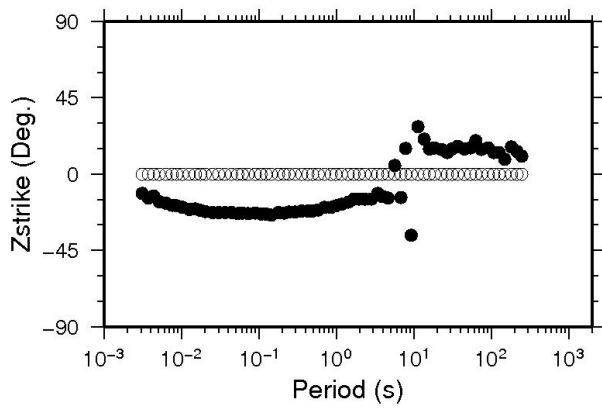
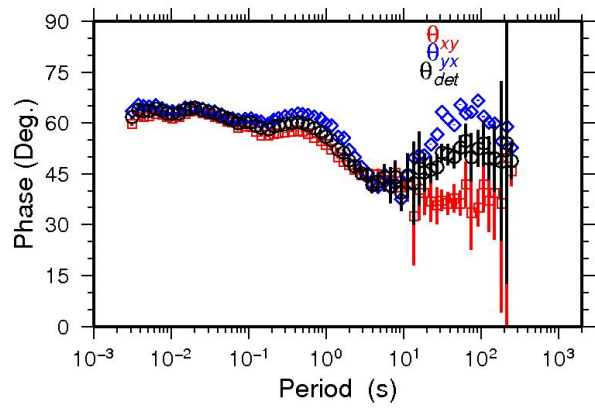
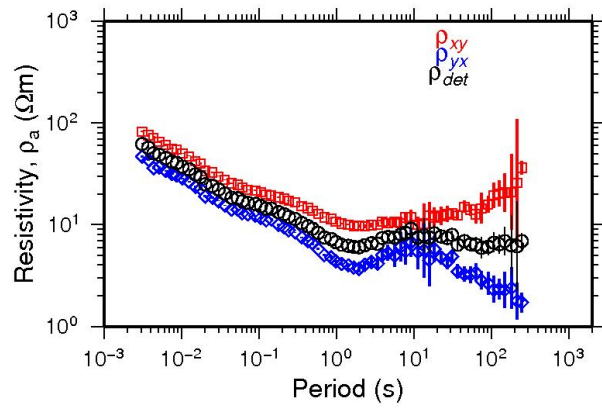
PAK

Skrá: PAK86.EDI



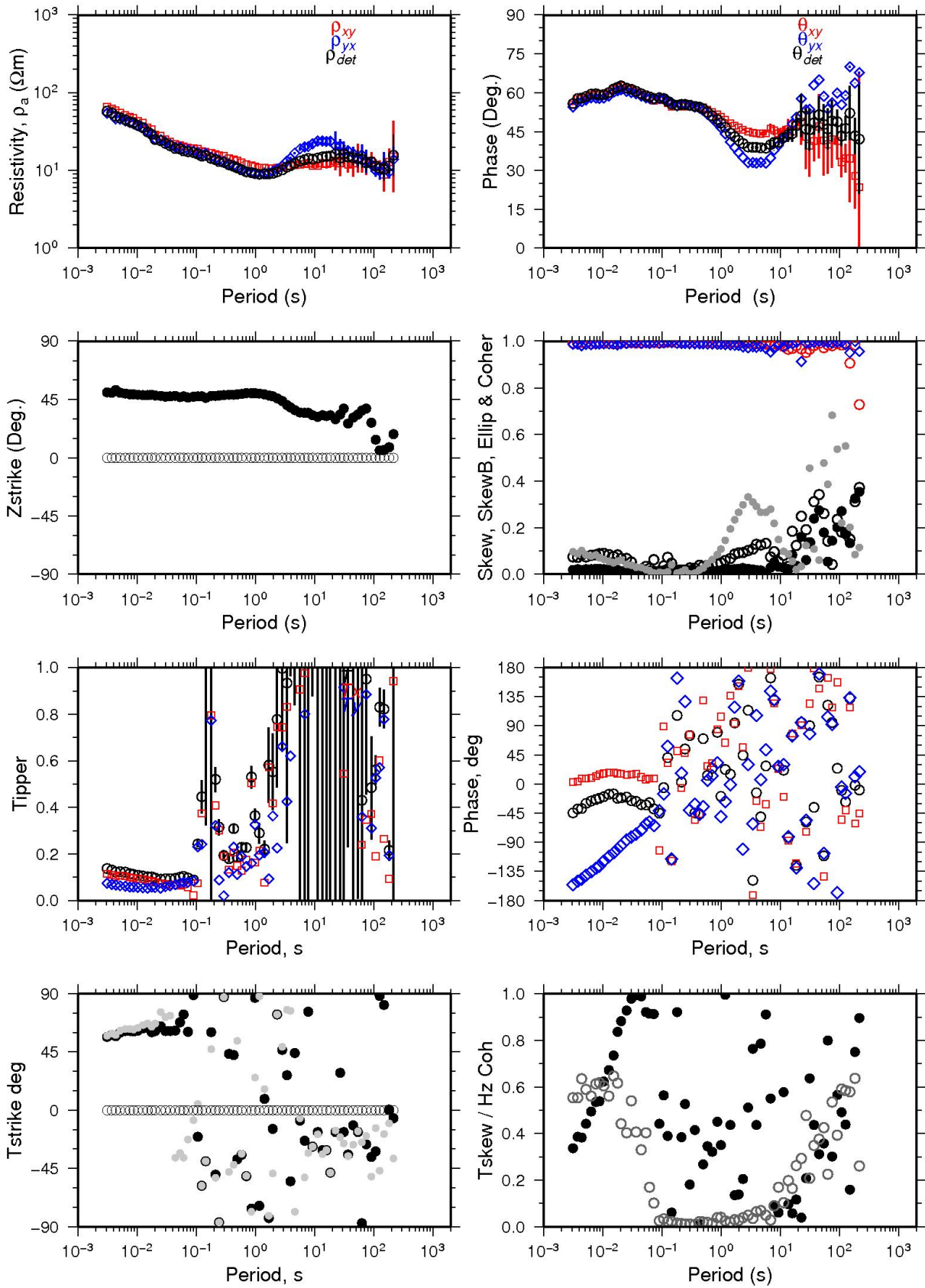
pkm

Skrá: PAK87.EDI



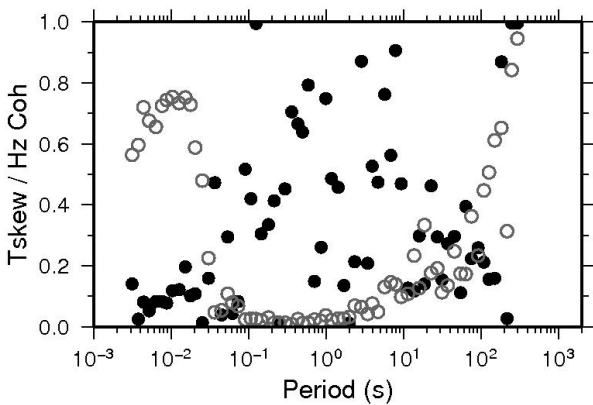
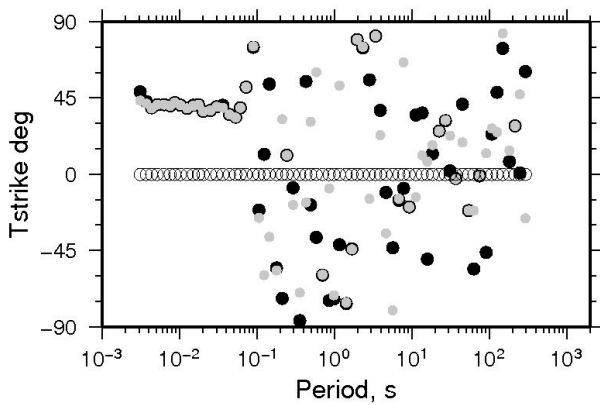
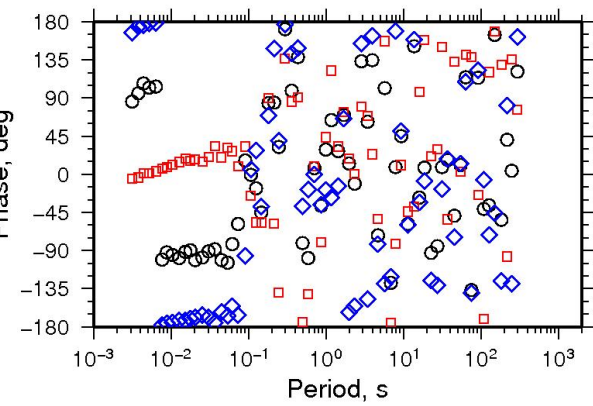
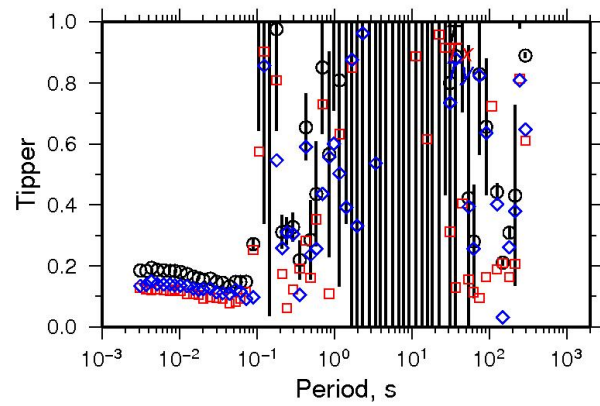
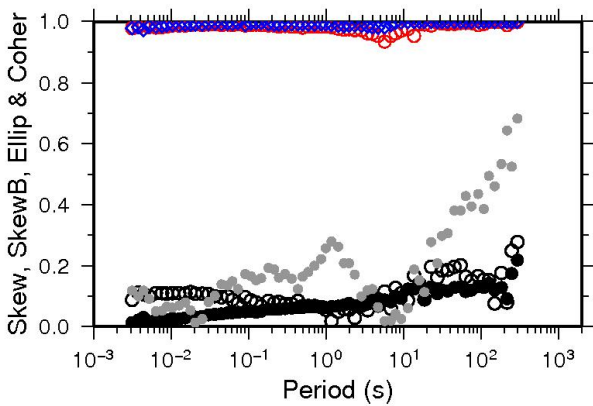
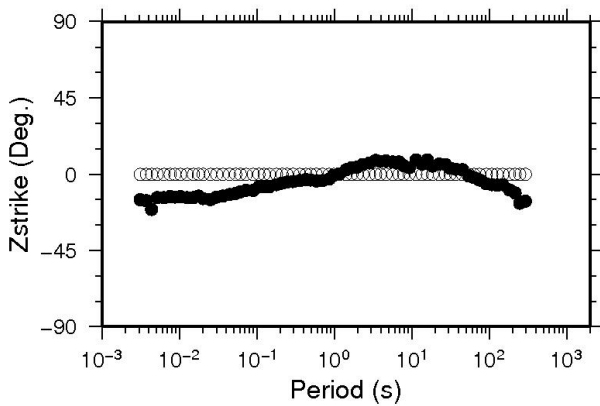
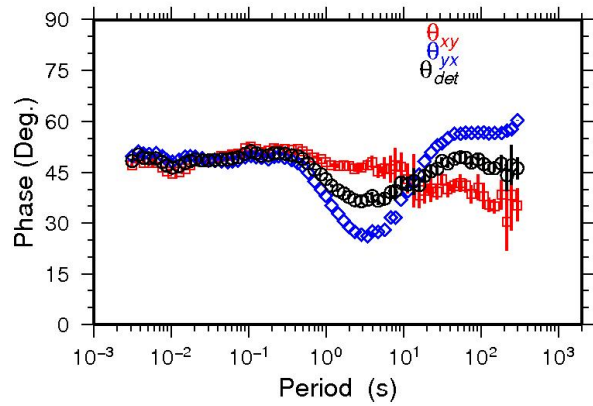
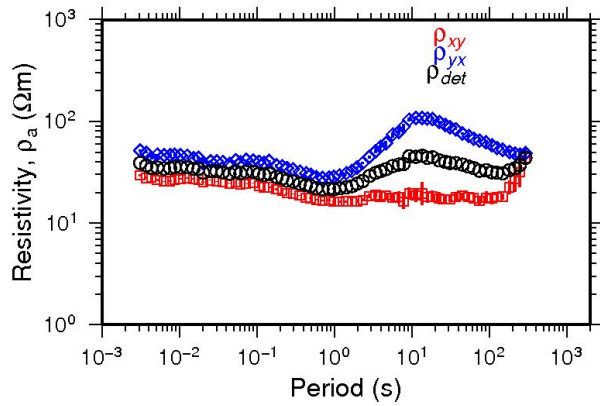
PKM

Skrá: PAK88.EDI



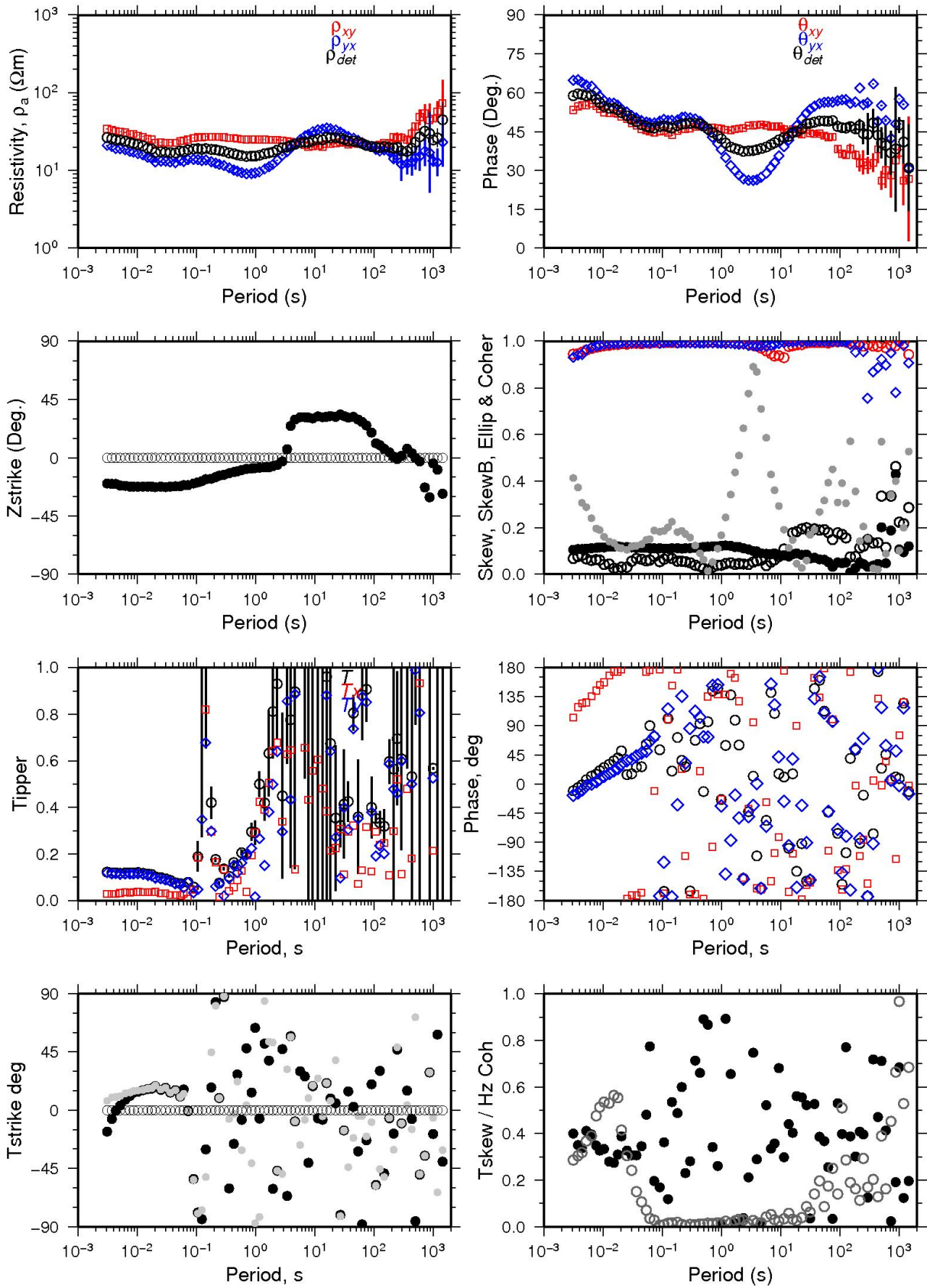
pak

Skrá: PAK89R.EDI



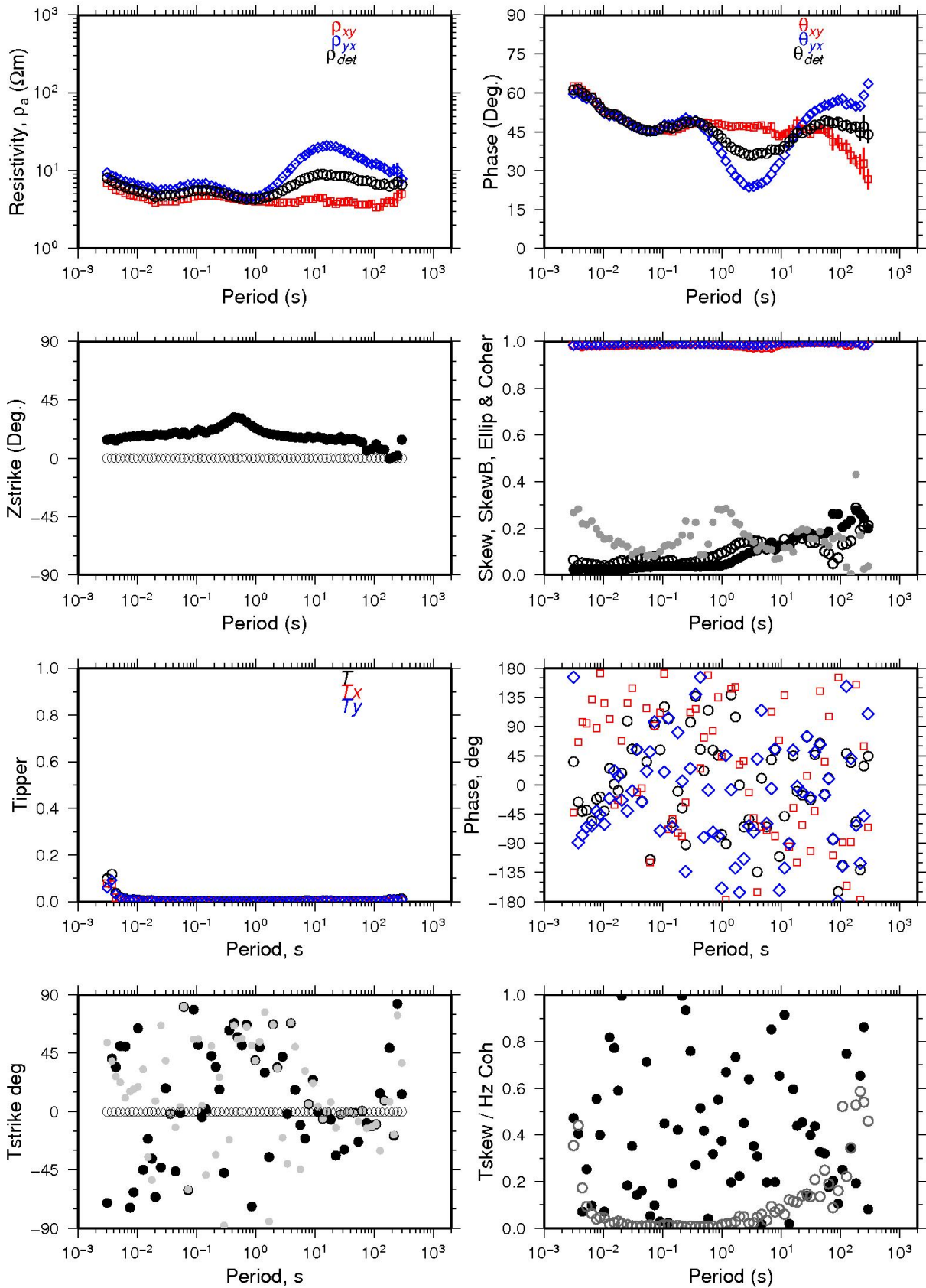
PAK

Skrá: PAK90.EDI



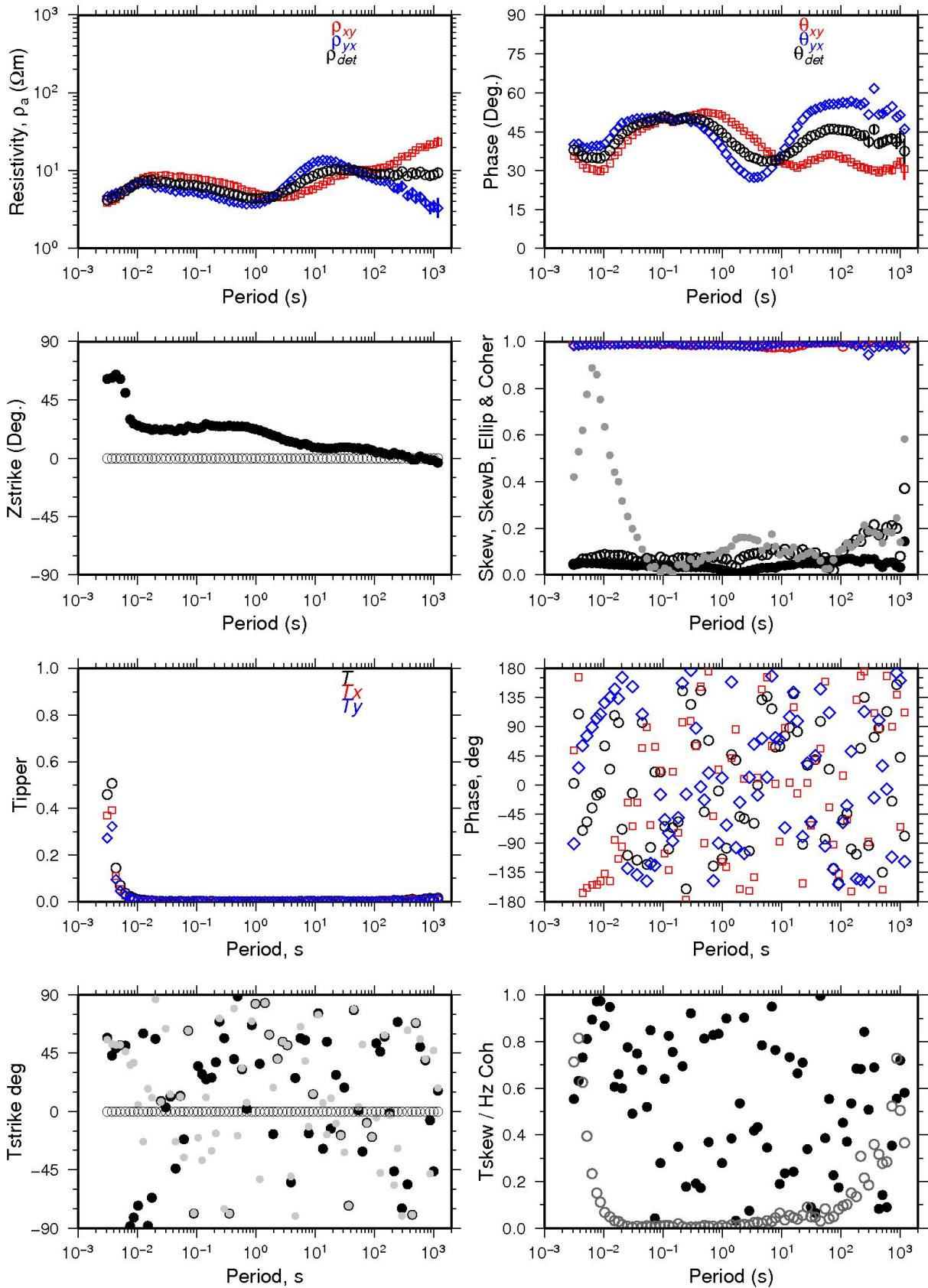
PAK

Skrá: PAK91.EDI



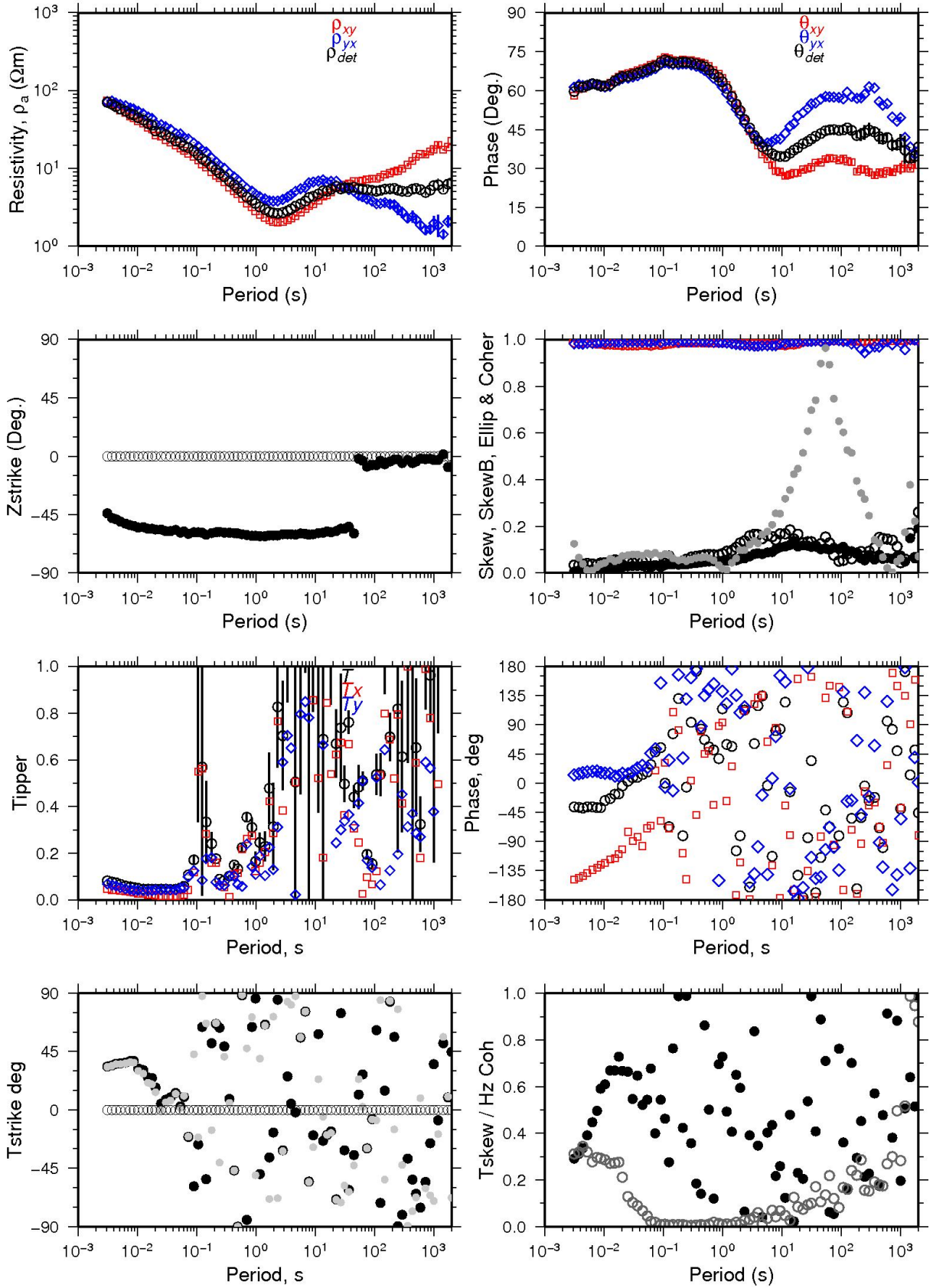
PAK

Skrá: PAK92.EDI



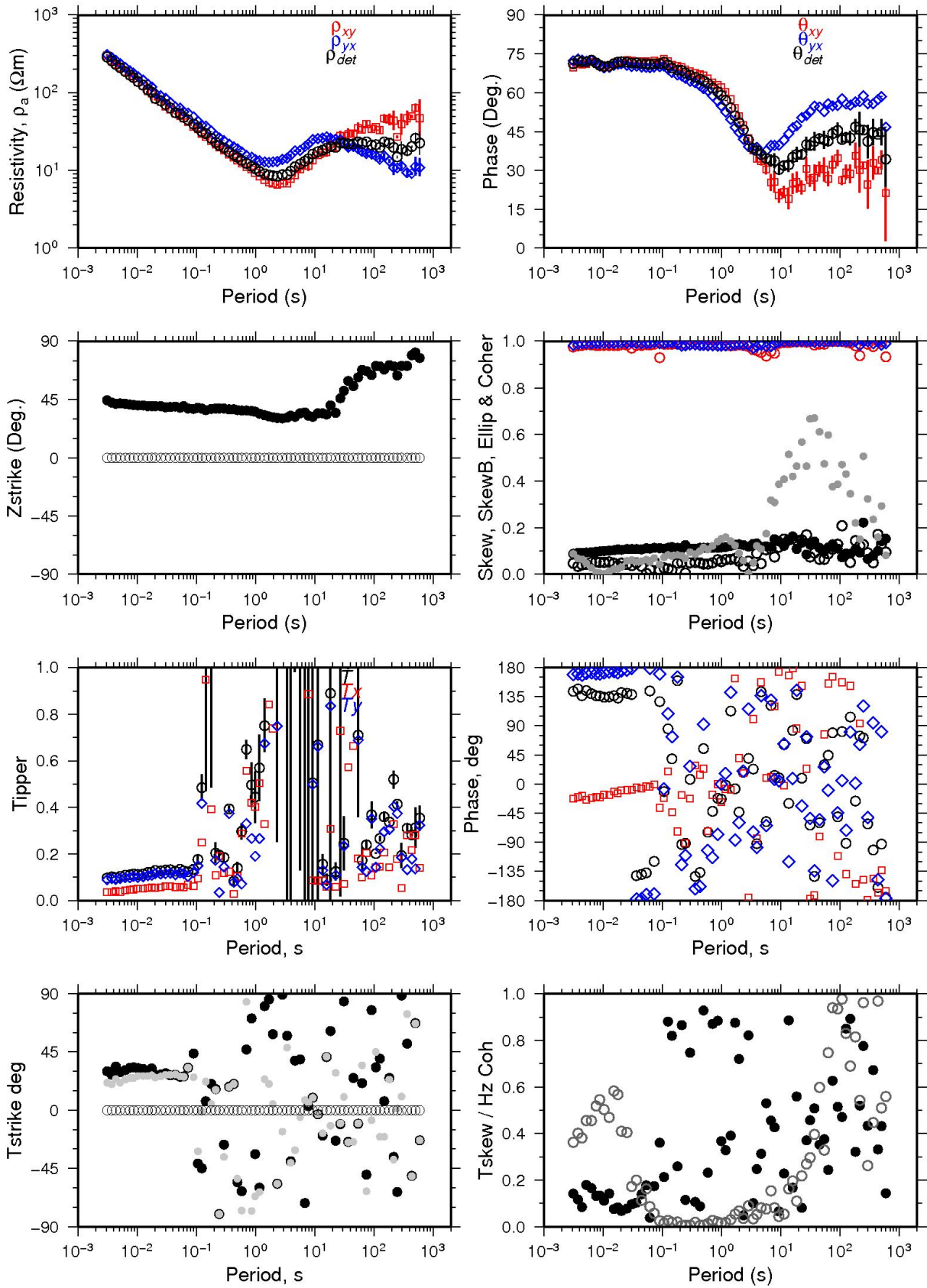
pak

Skrá: PAK93.EDI



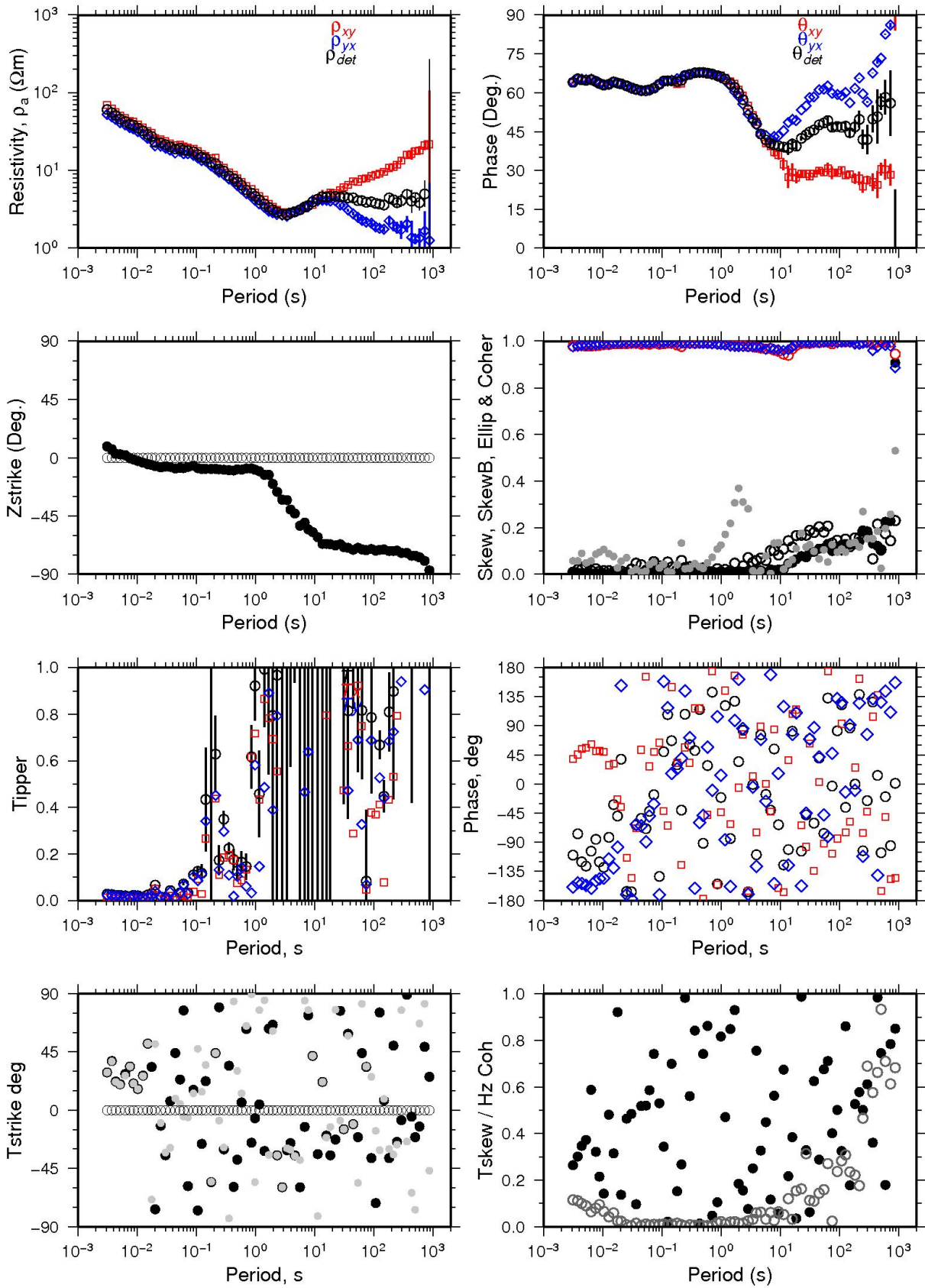
PAK

Skrá: PAK94R.EDI



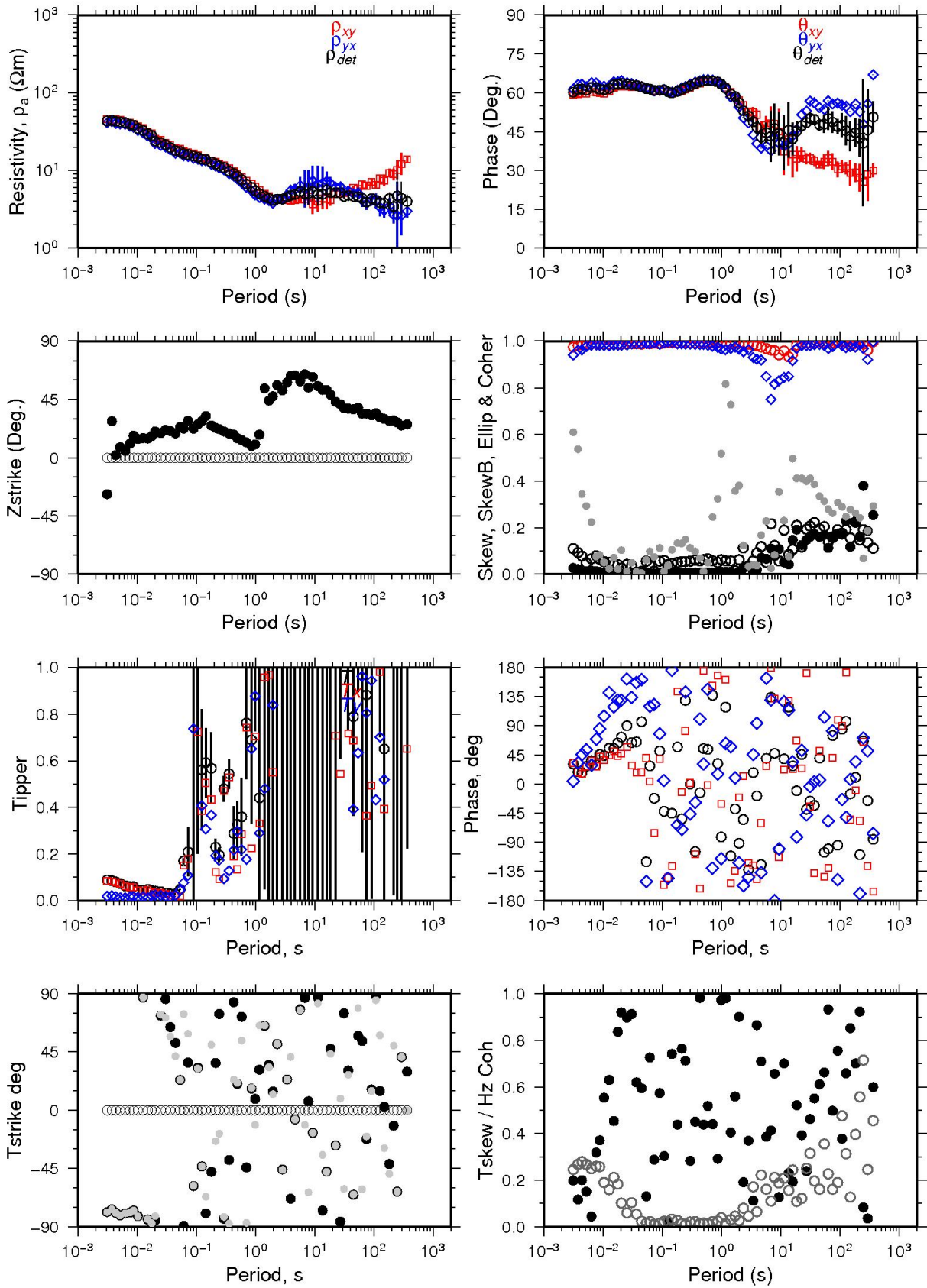
PAK

Skrá: PAK95.EDI



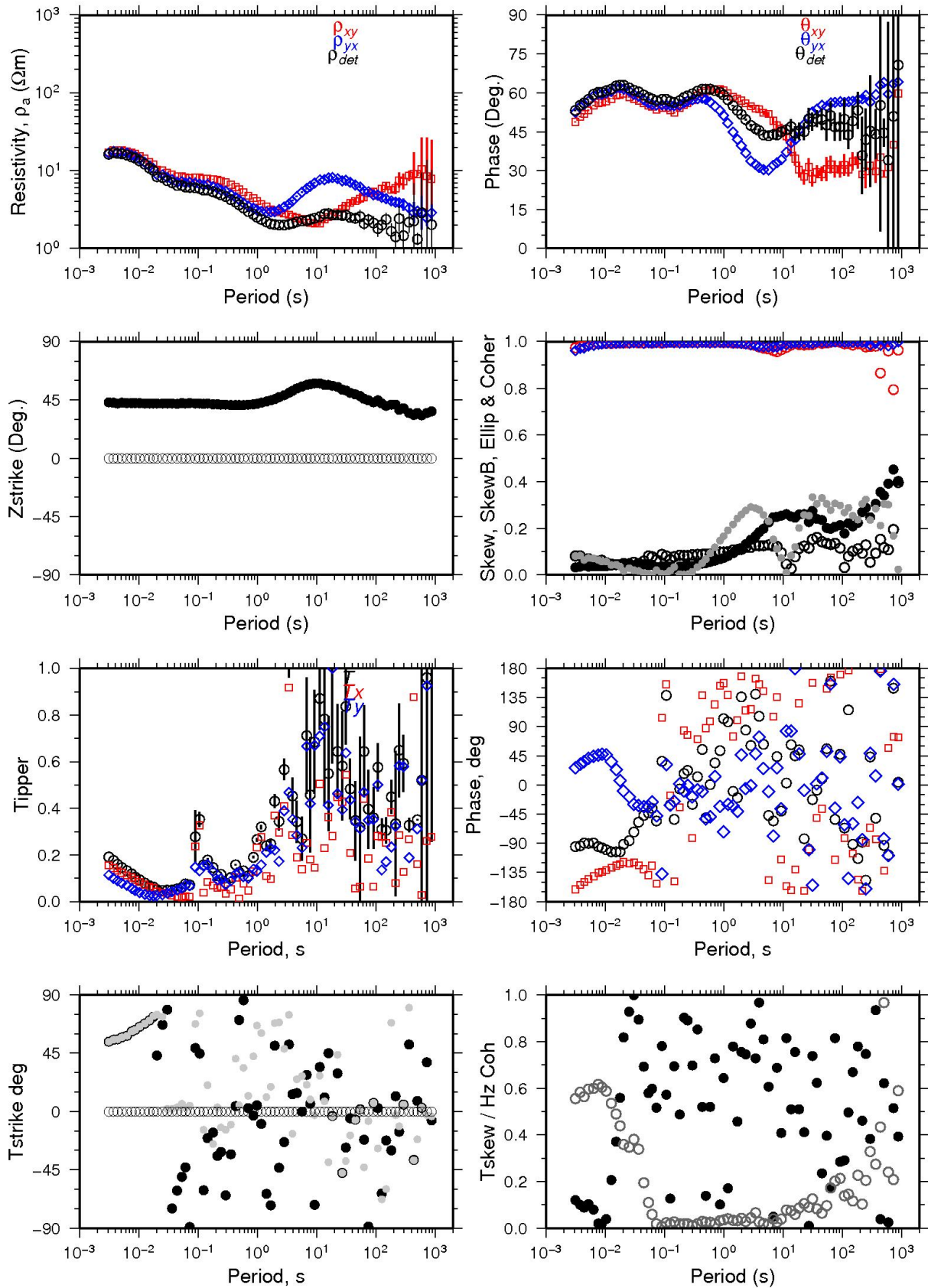
pkm

Skrá: PAK97.EDI



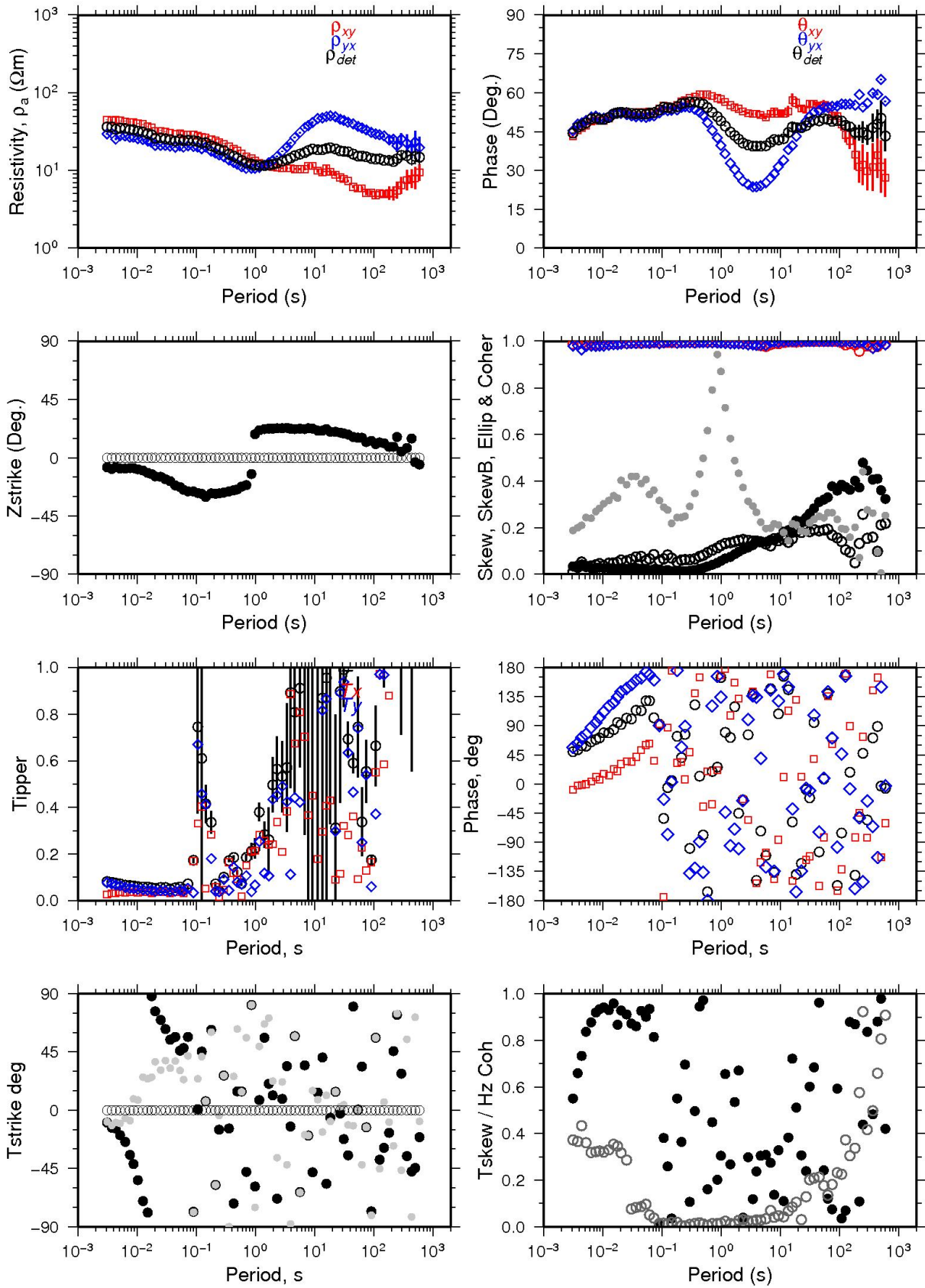
PAK

Skrá: PAK98.EDI



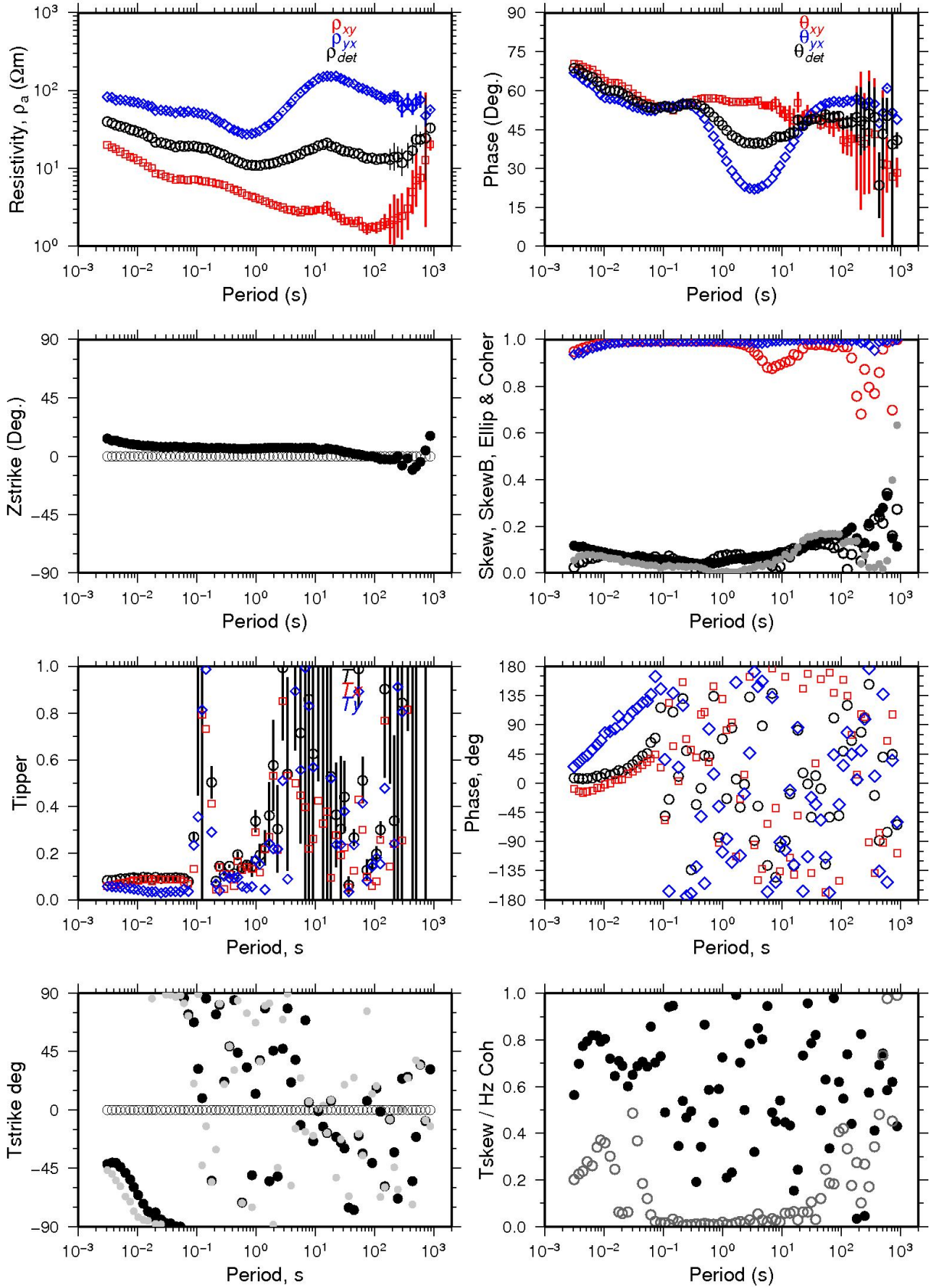
pak

Skrá: PAK99.EDI



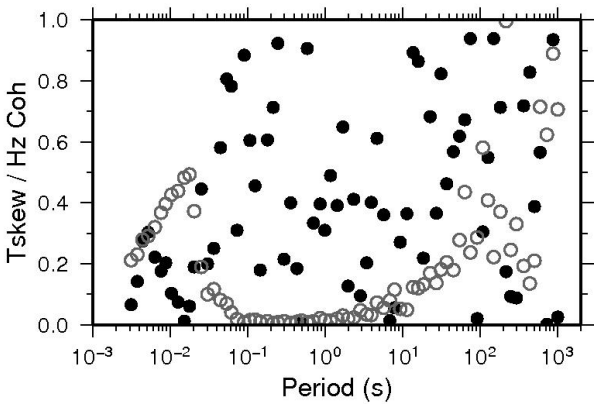
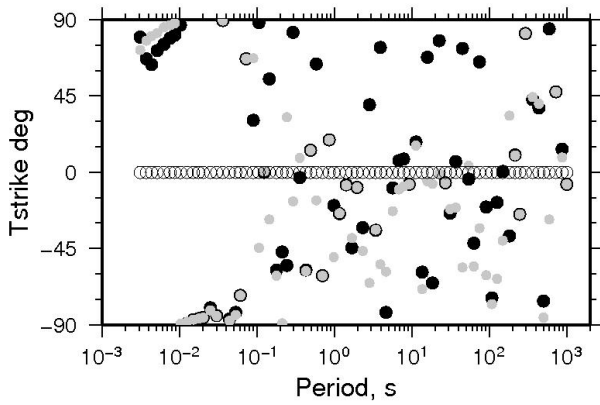
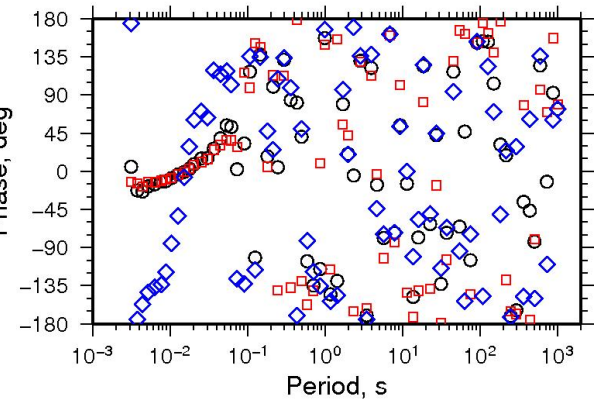
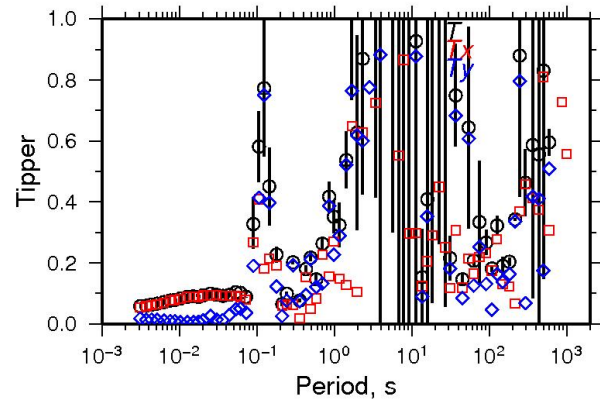
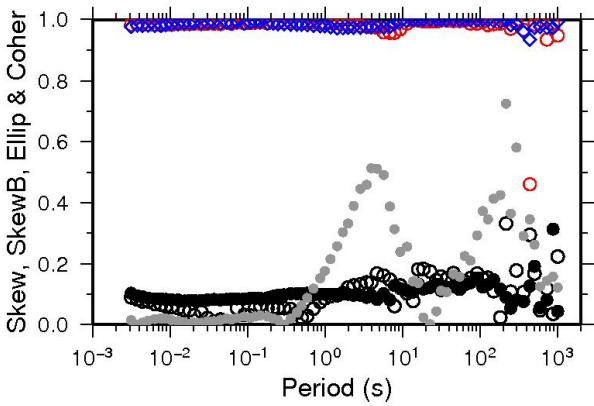
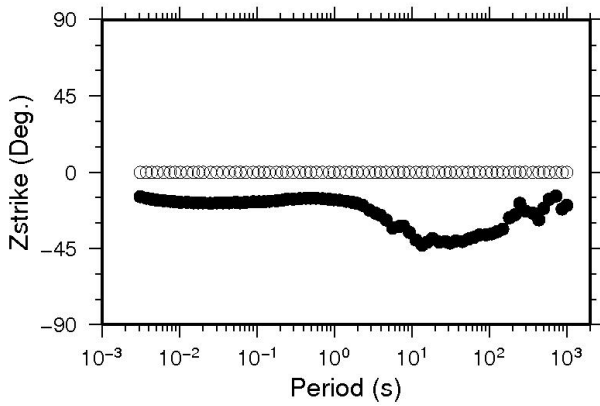
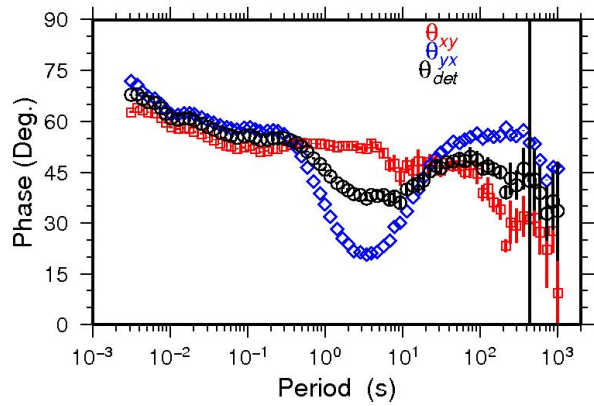
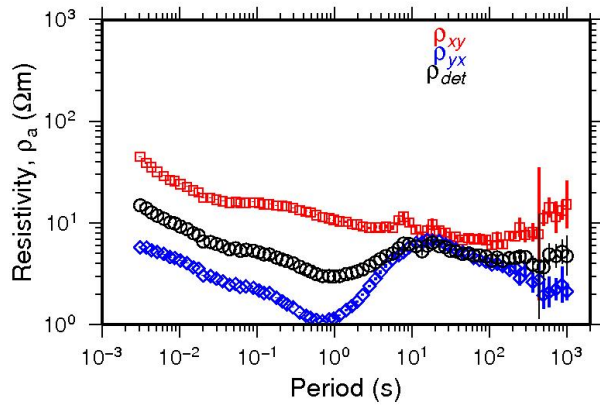
PAK

Skrá: PAK100.EDI



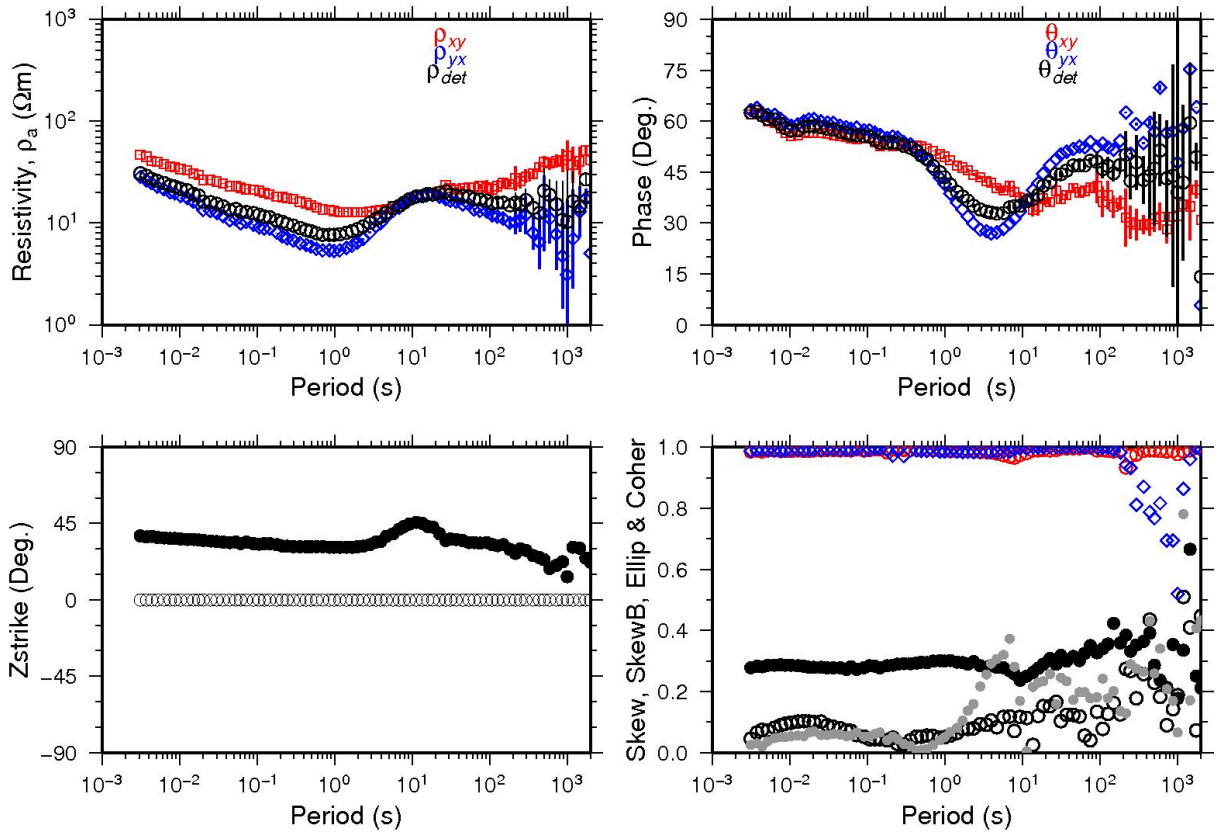
pmt

Skrá: PAK101.EDI



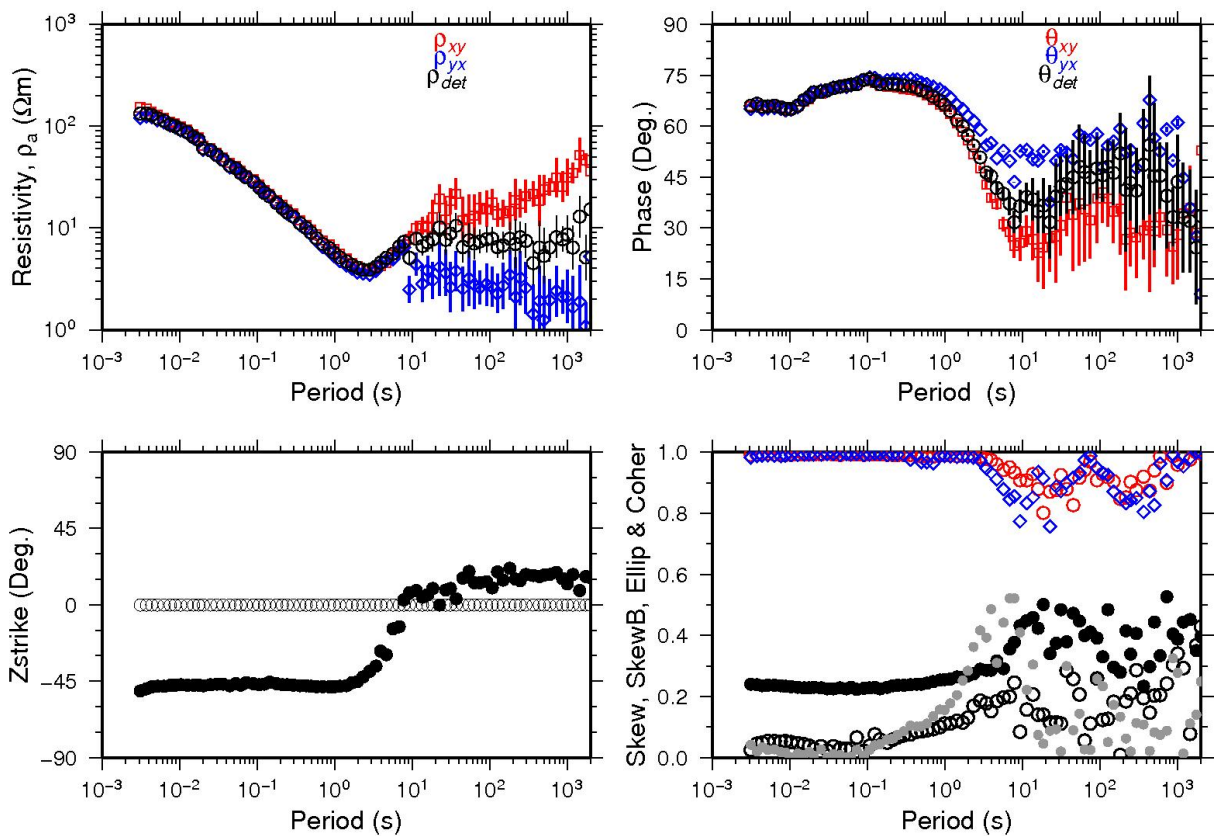
Pkm

Skrá: PAK102.EDI



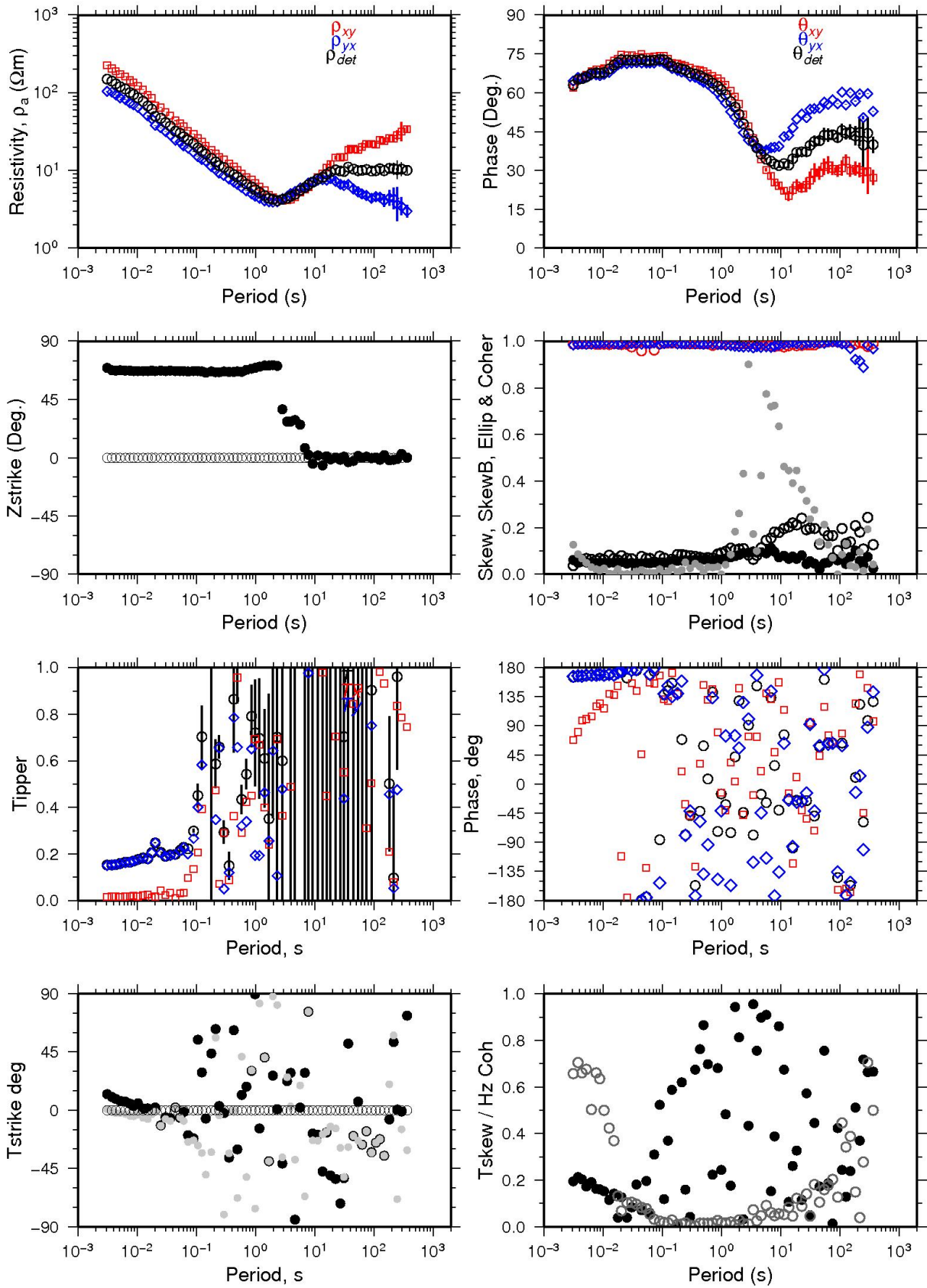
231

Skrá: PAK103.EDI



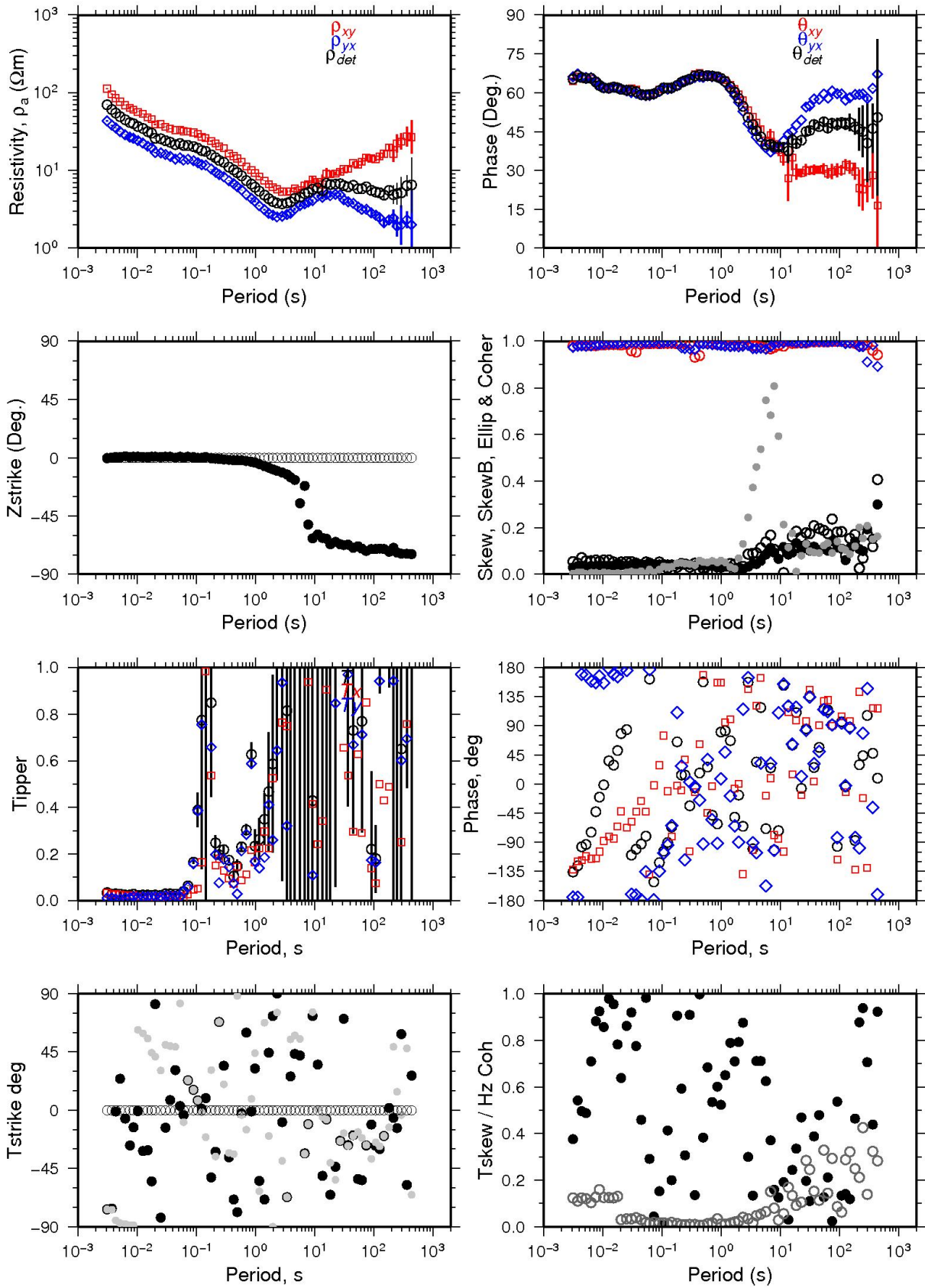
PAK

Skrá: PAK104.EDI



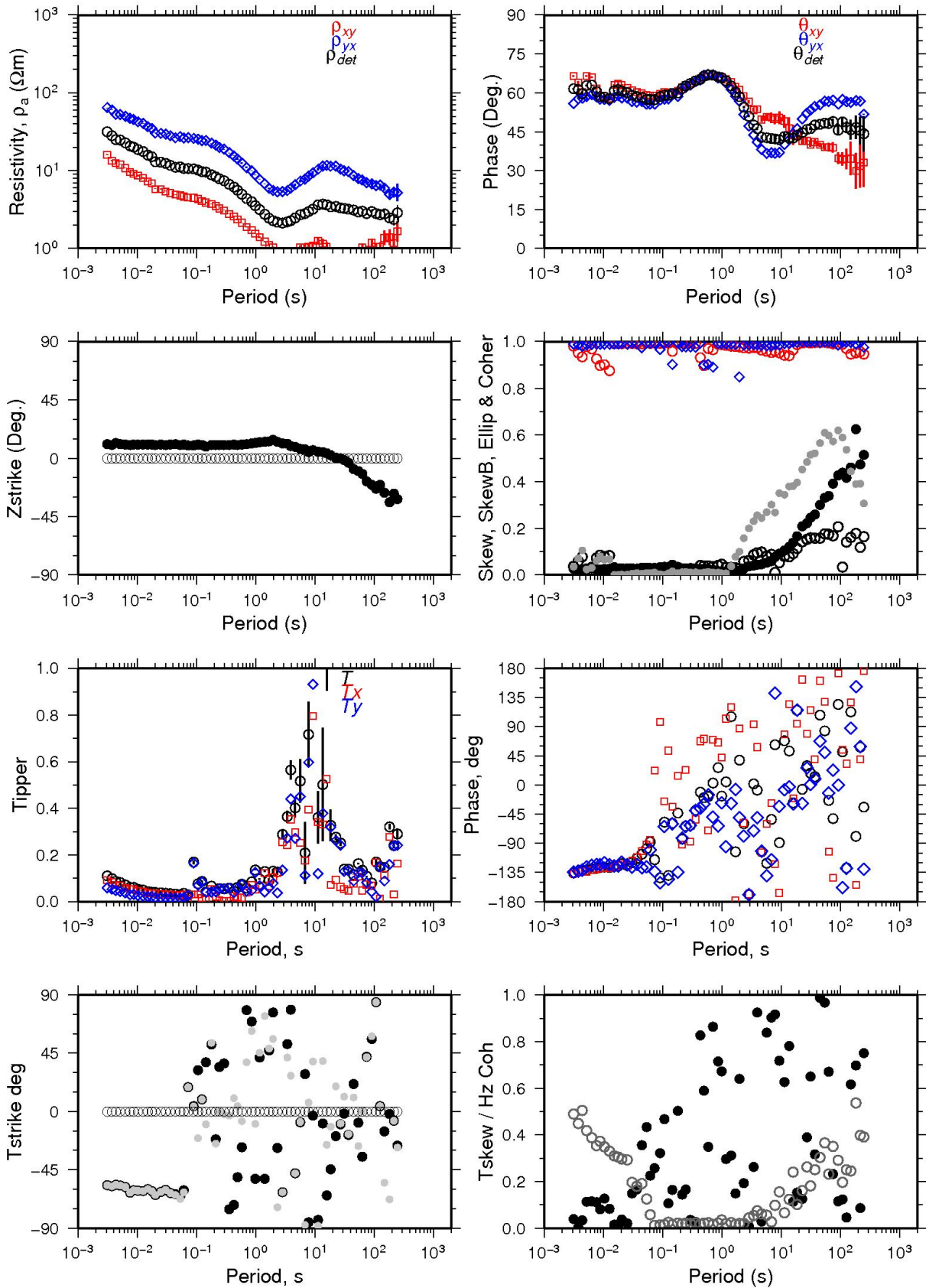
PKM

Skrá: PAK105B.EDI



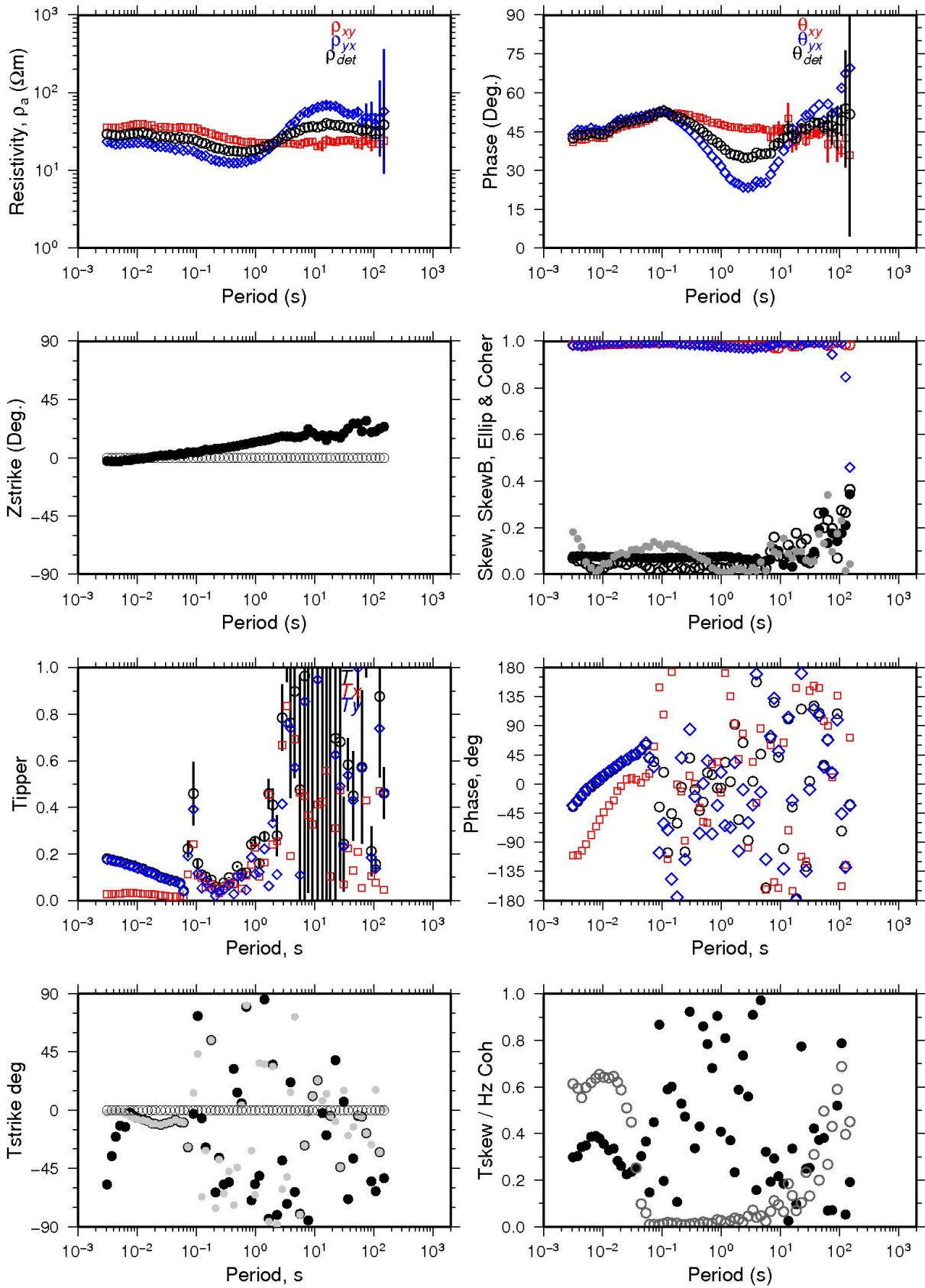
pkm

Skrá: PAK106R.EDI



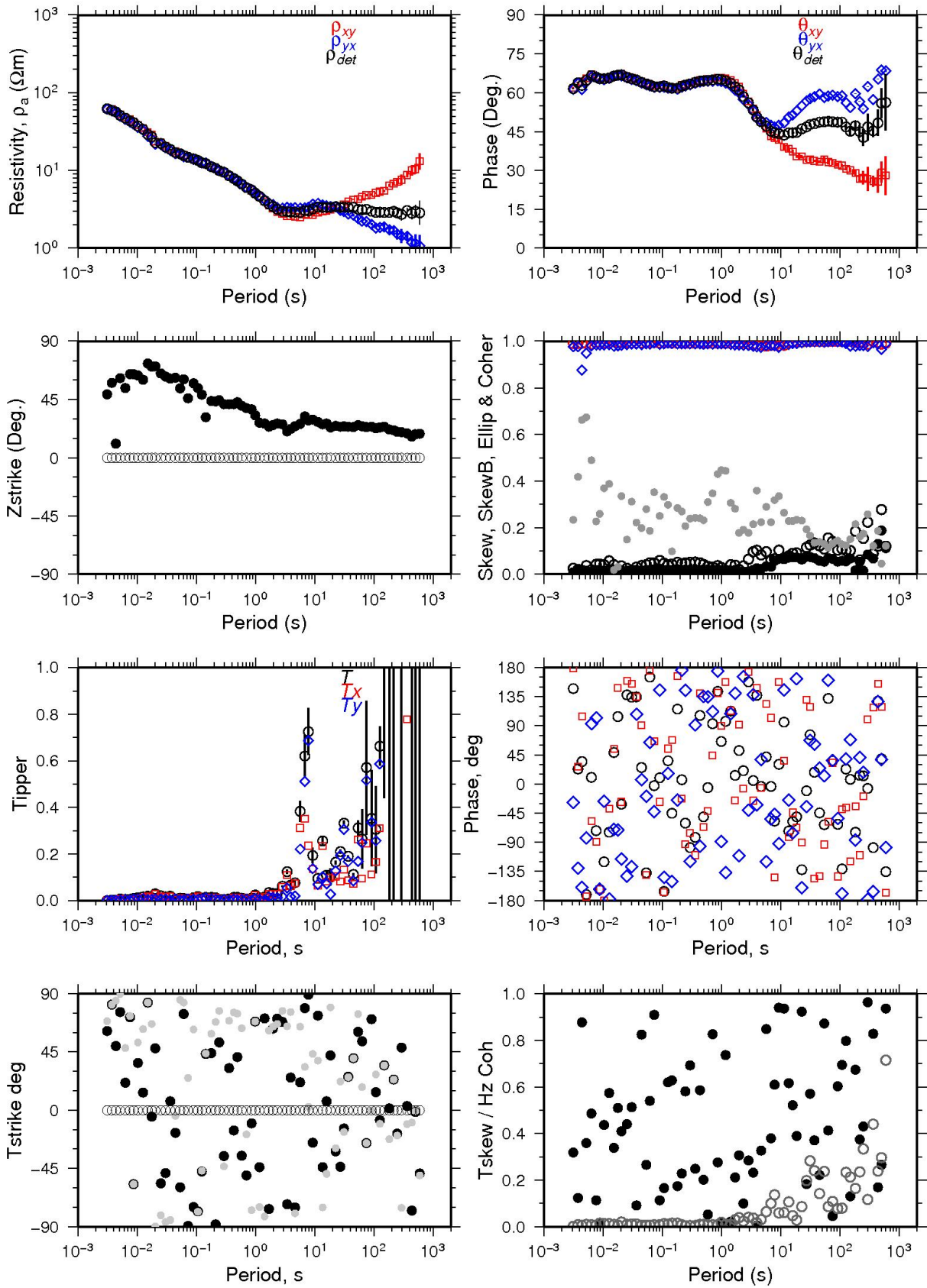
PKC

Skrá: PAKCRT1.EDI



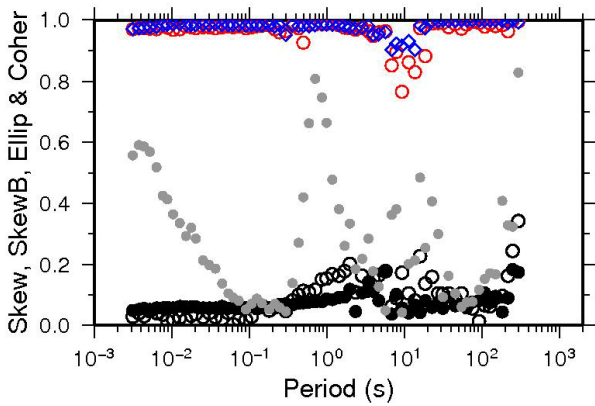
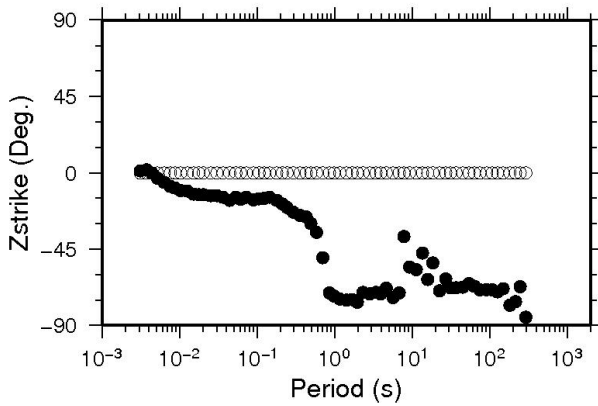
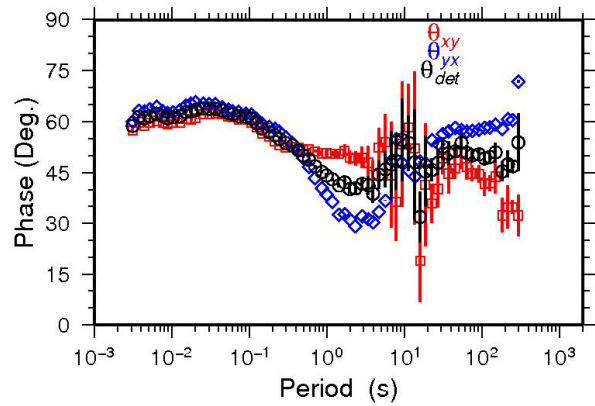
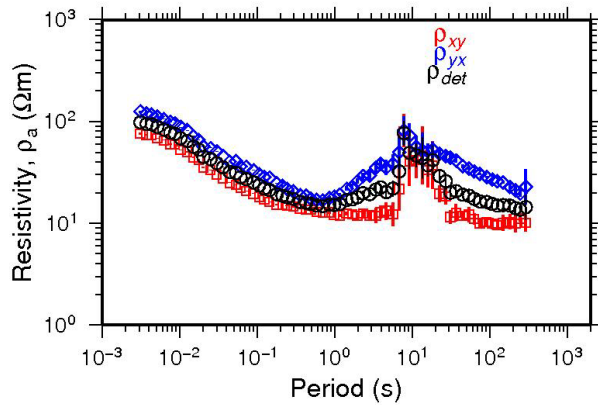
pkm

Skrá: PakMT01.EDI



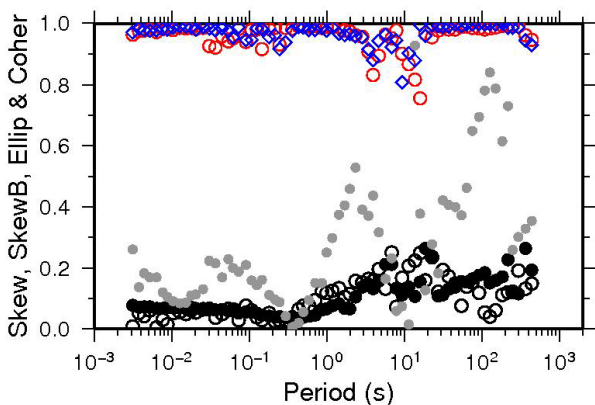
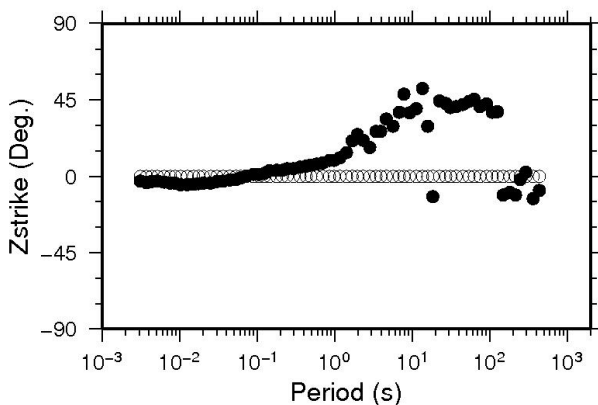
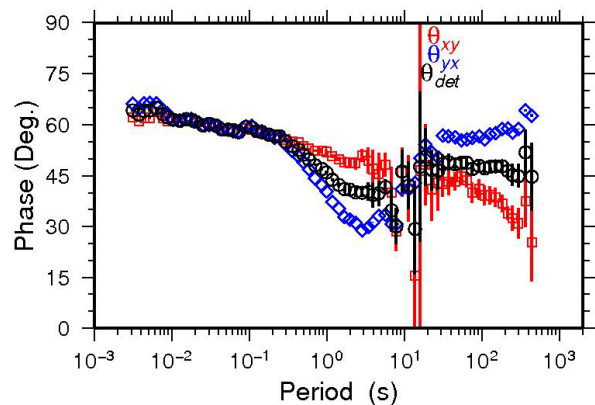
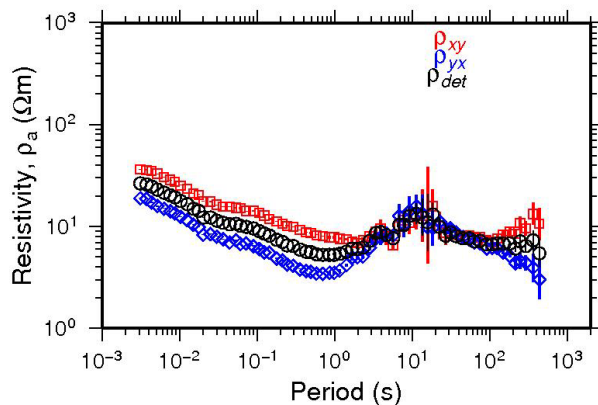
Pak

Skrá: PakMT03.EDI



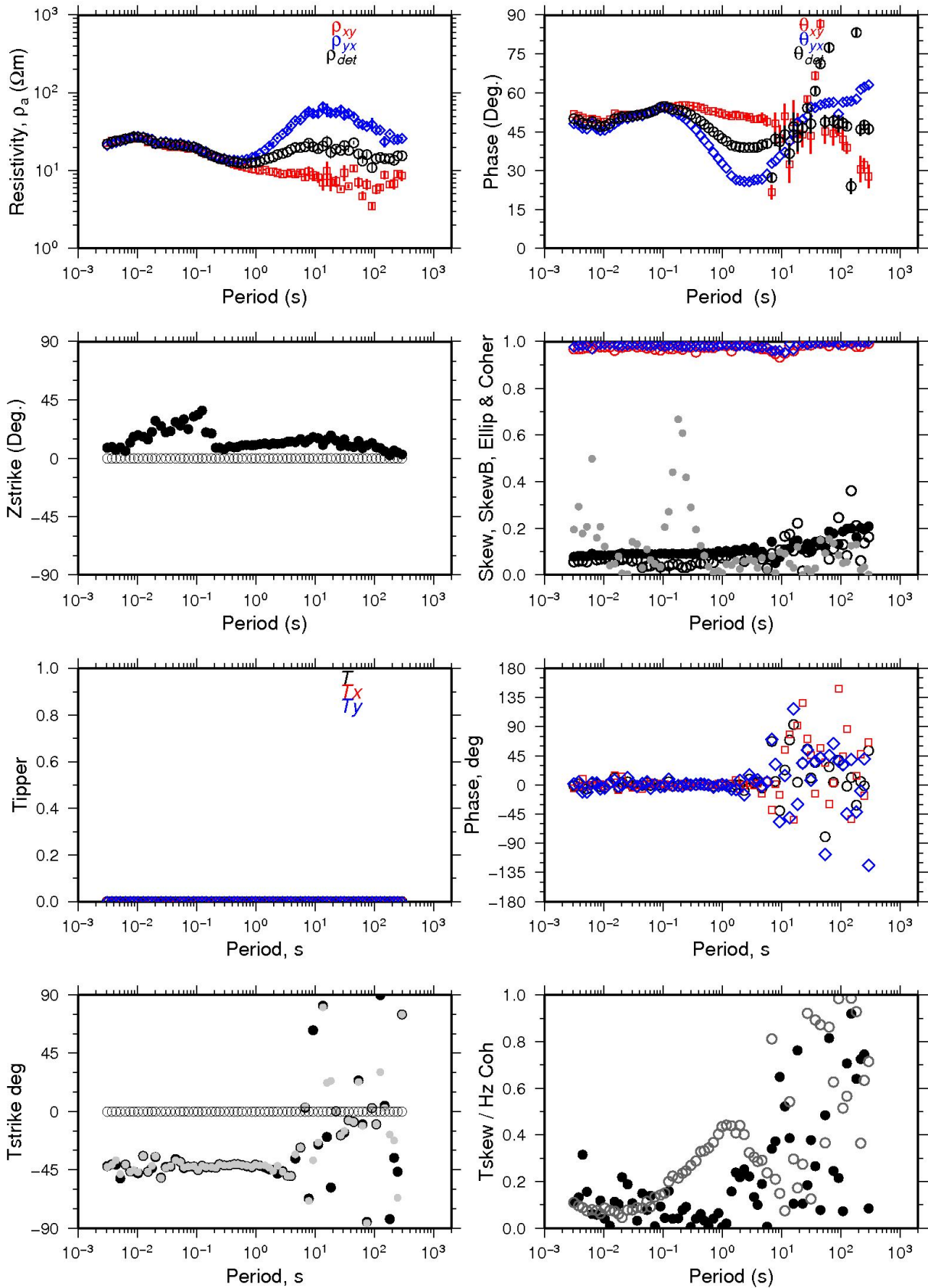
Pak

Skrá: PakMT05.EDI



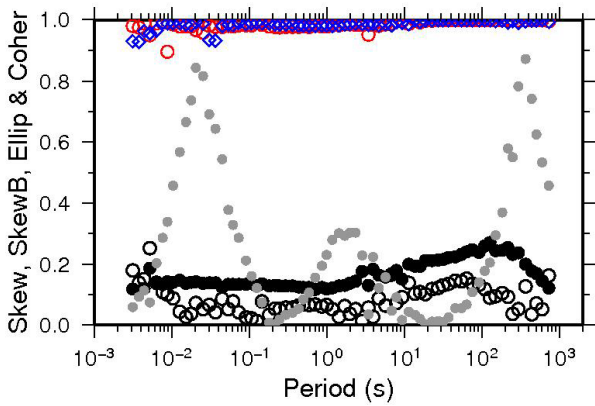
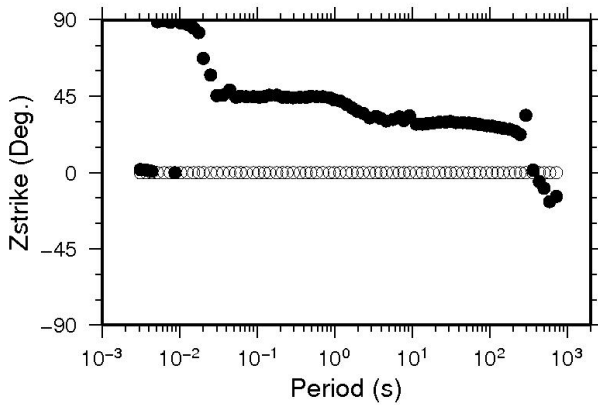
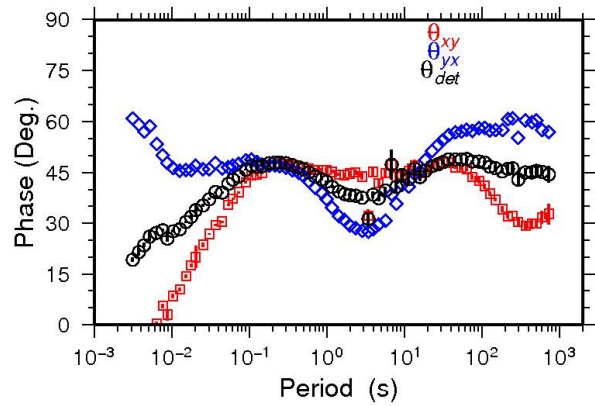
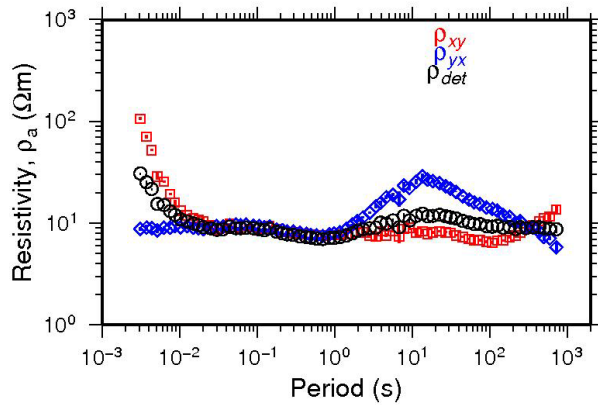
Pak

Skrá: PakMT06.EDI



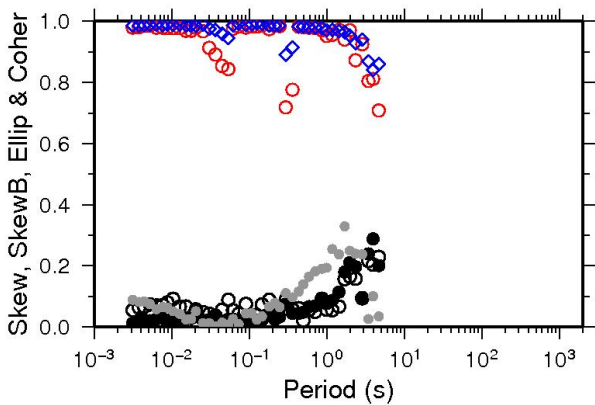
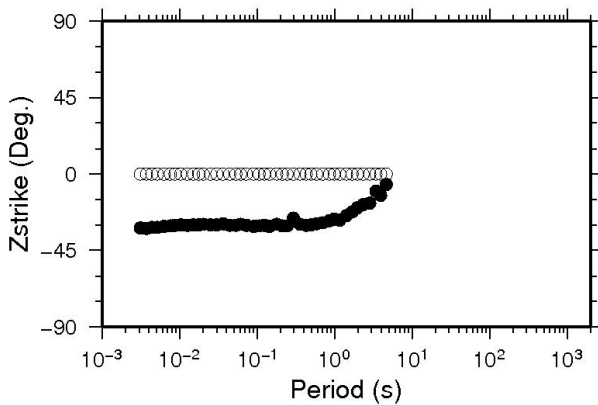
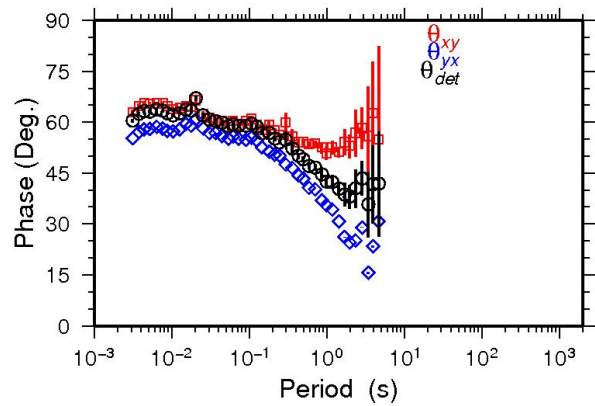
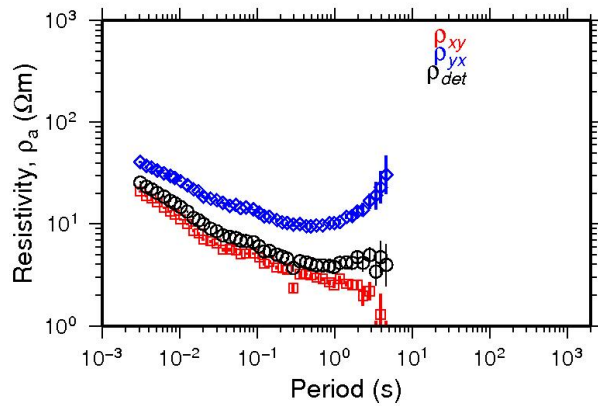
Pak

Skrá: PakMT07.EDI



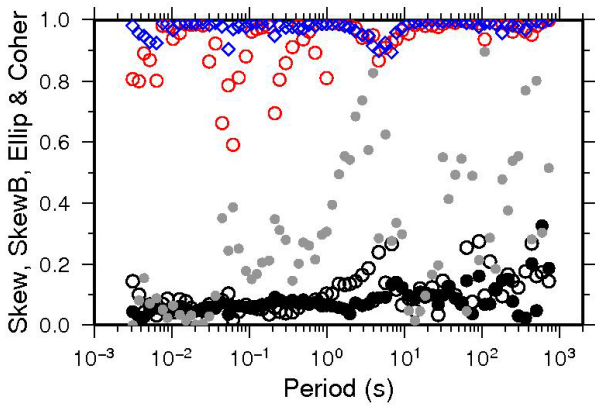
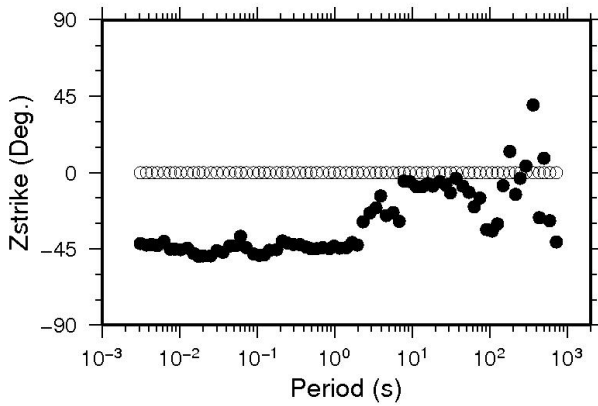
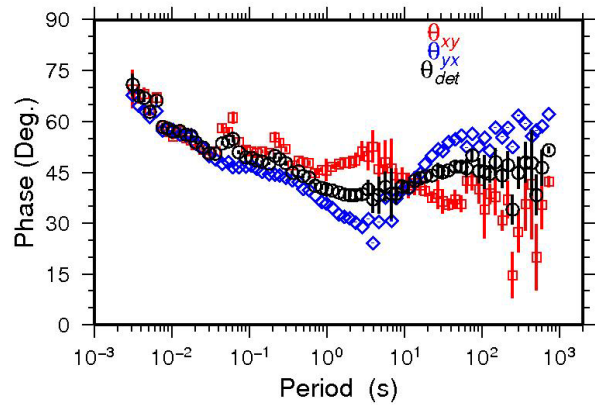
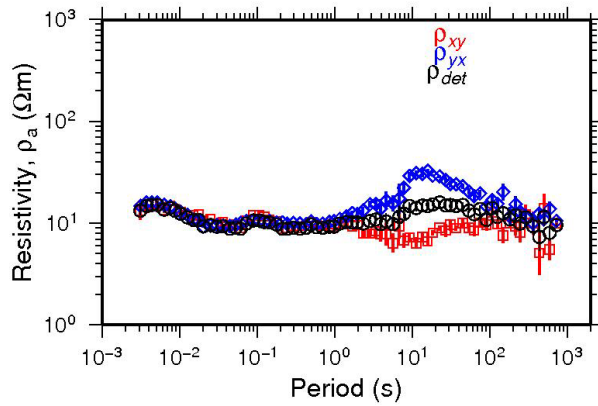
pak

Skrá: PakMT08.EDI



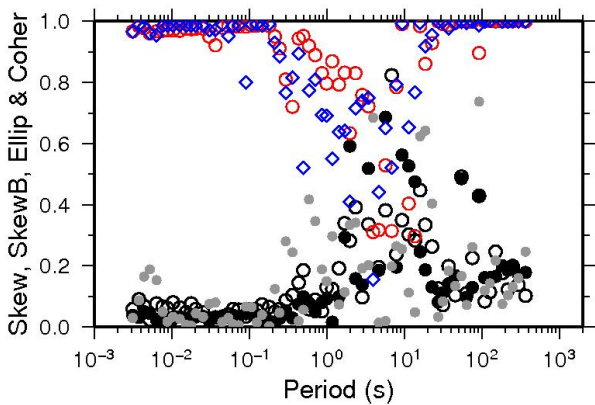
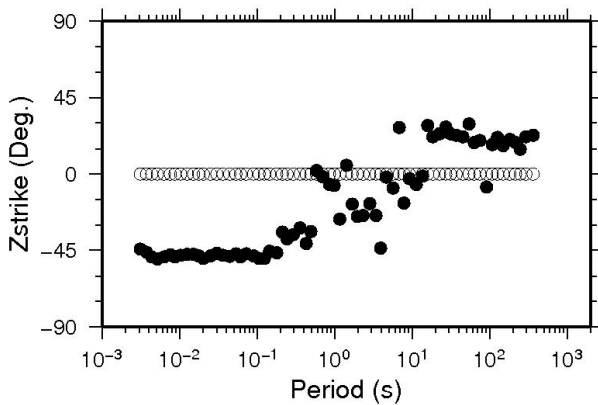
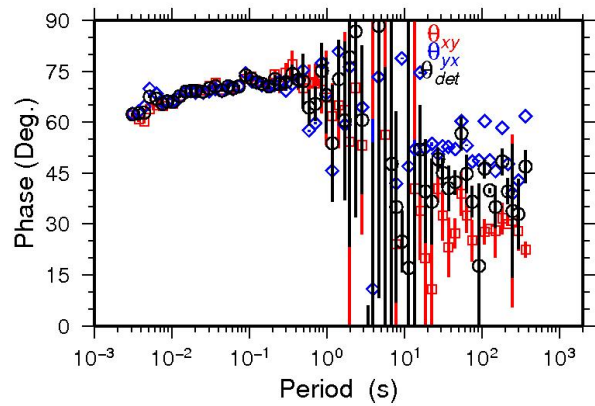
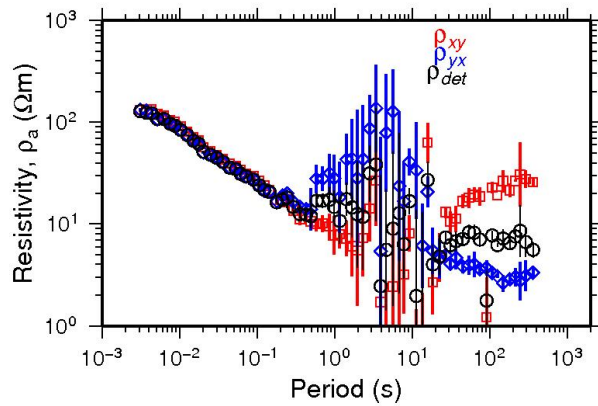
Pak

Skrá: PakMT09.EDI



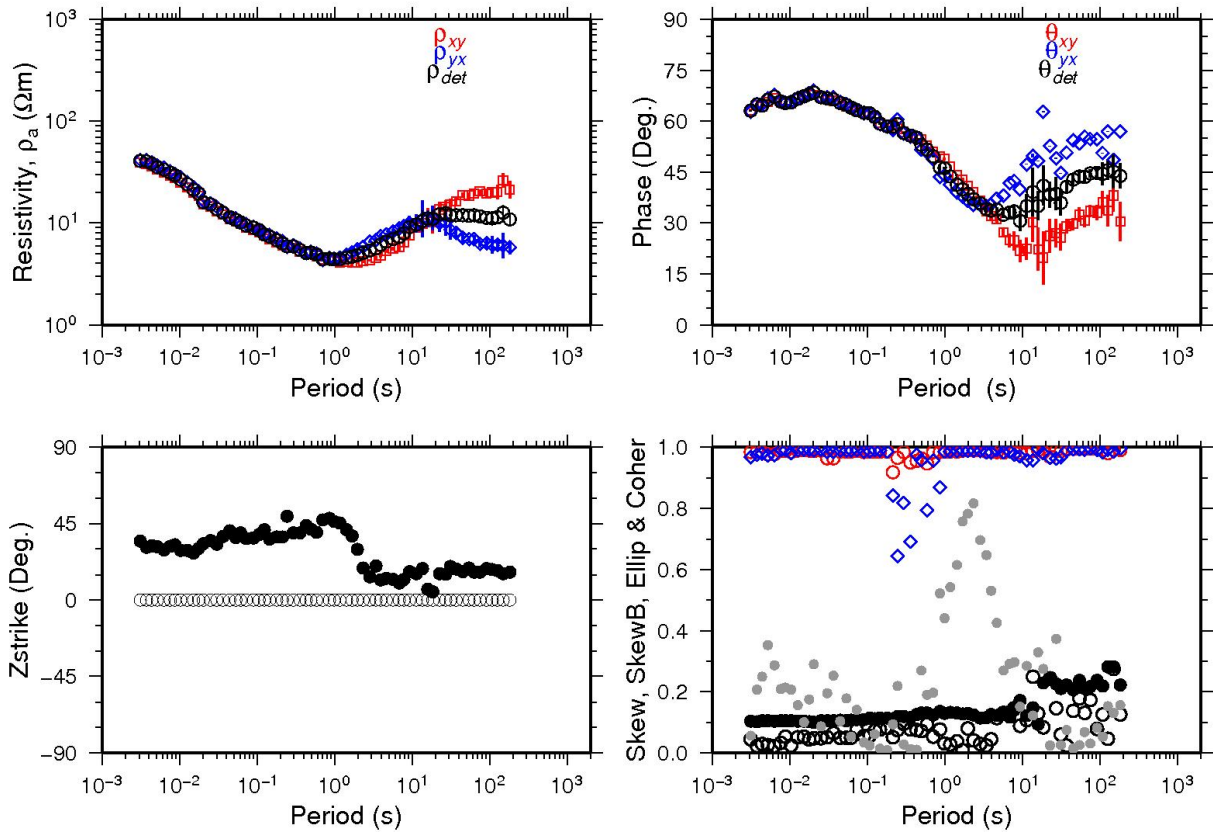
Pak

Skrá: PakMT11.EDI



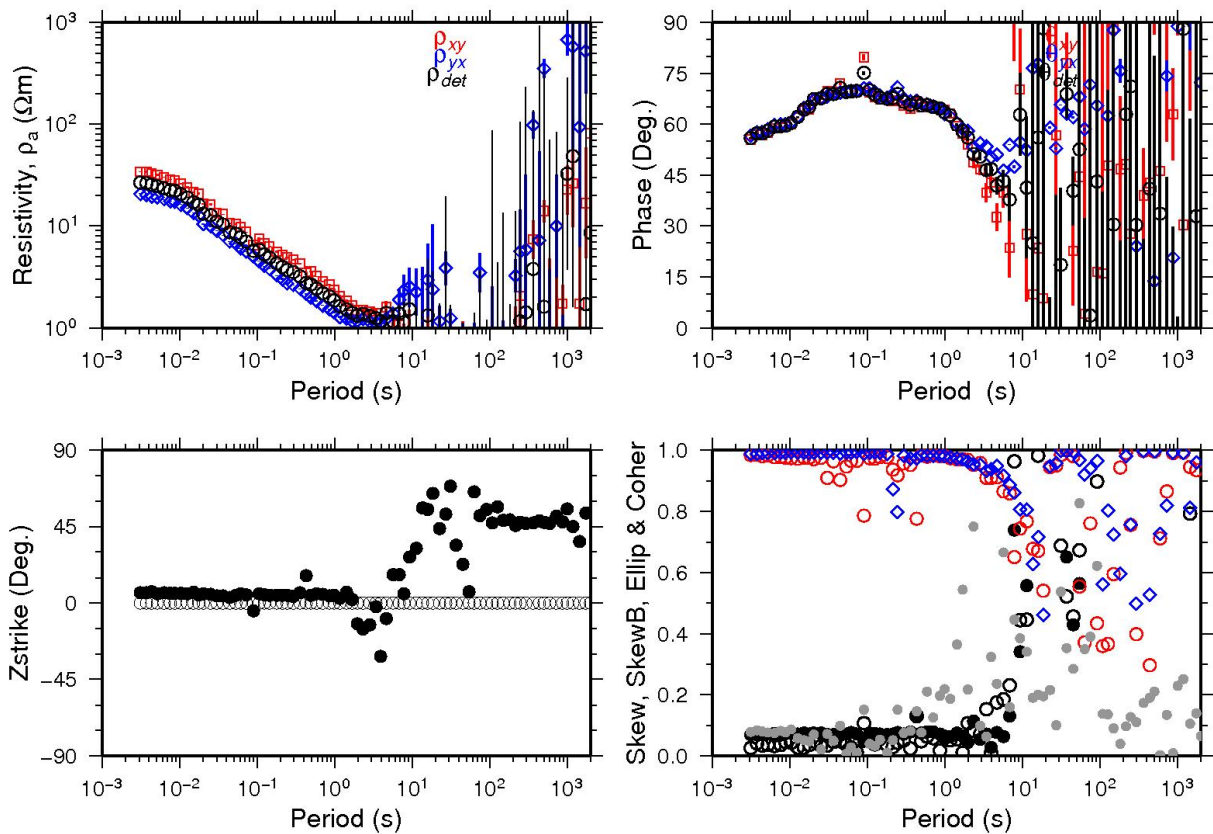
Pak

Skrá: PakMT12.EDI



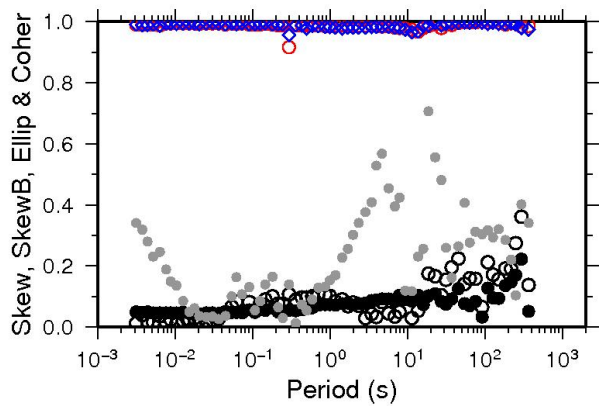
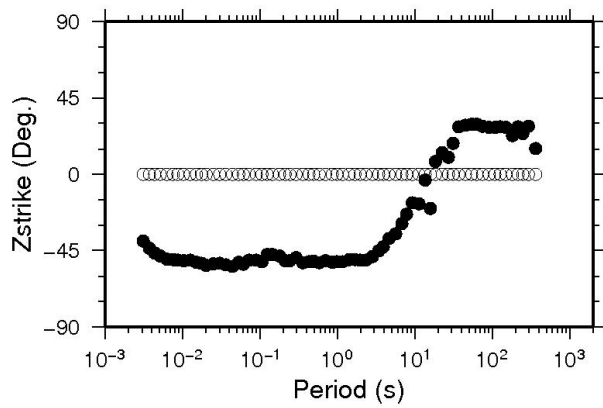
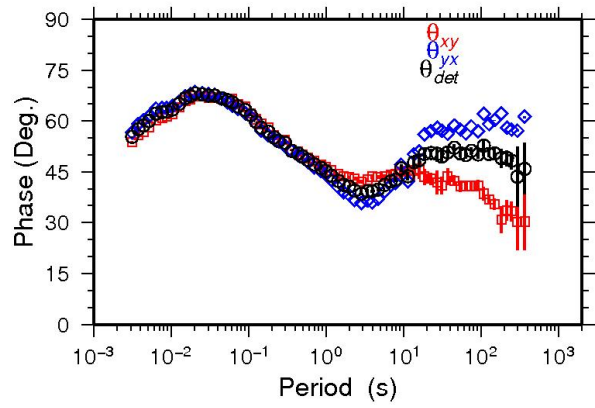
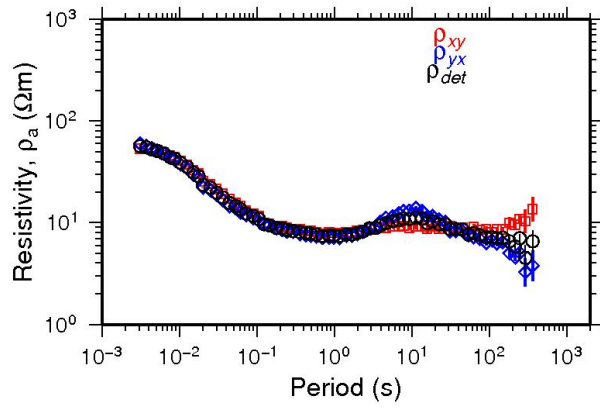
Pak

Skrá: PakMT13.EDI



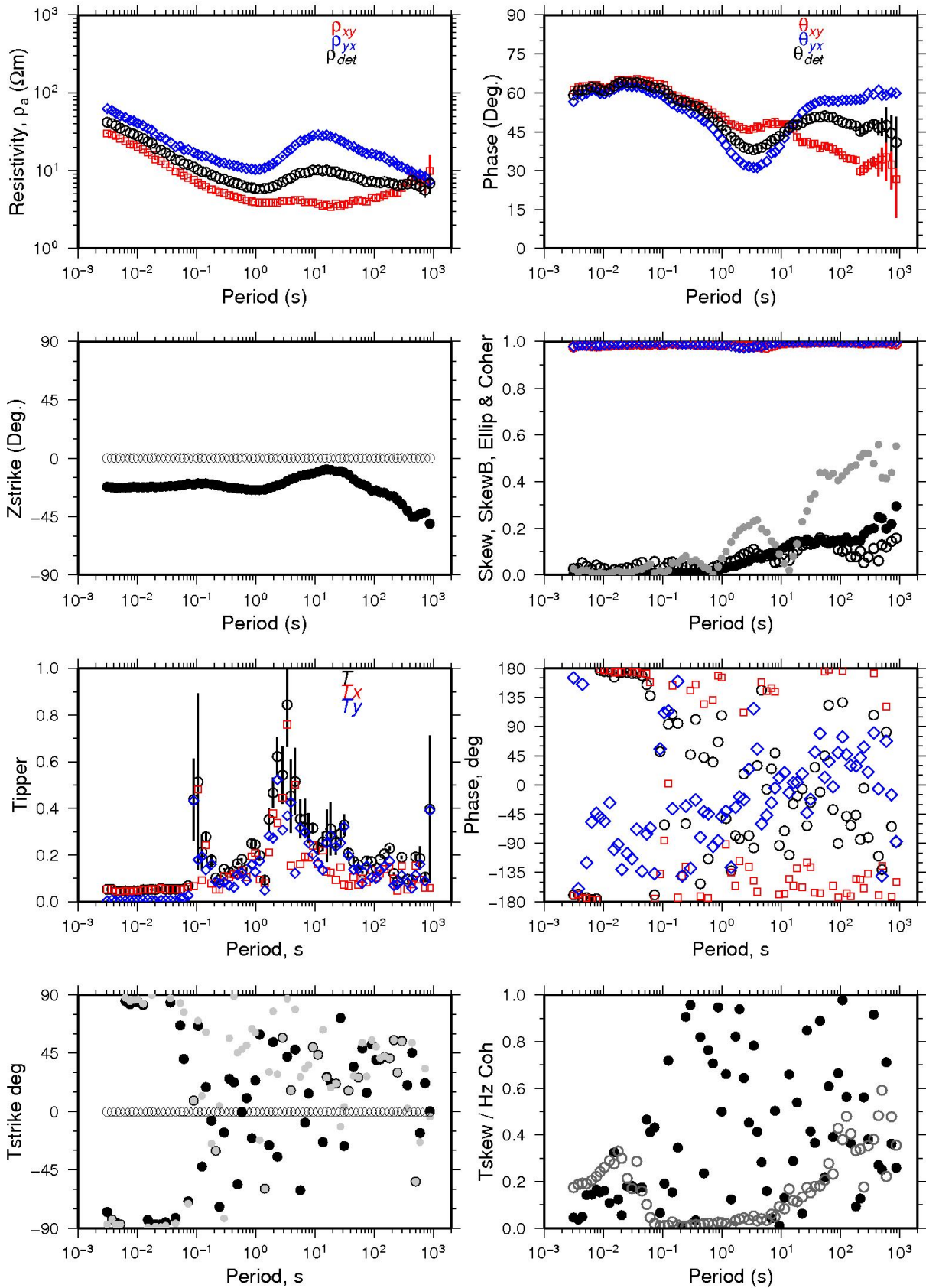
Pak

Skrá: PakMT14.EDI



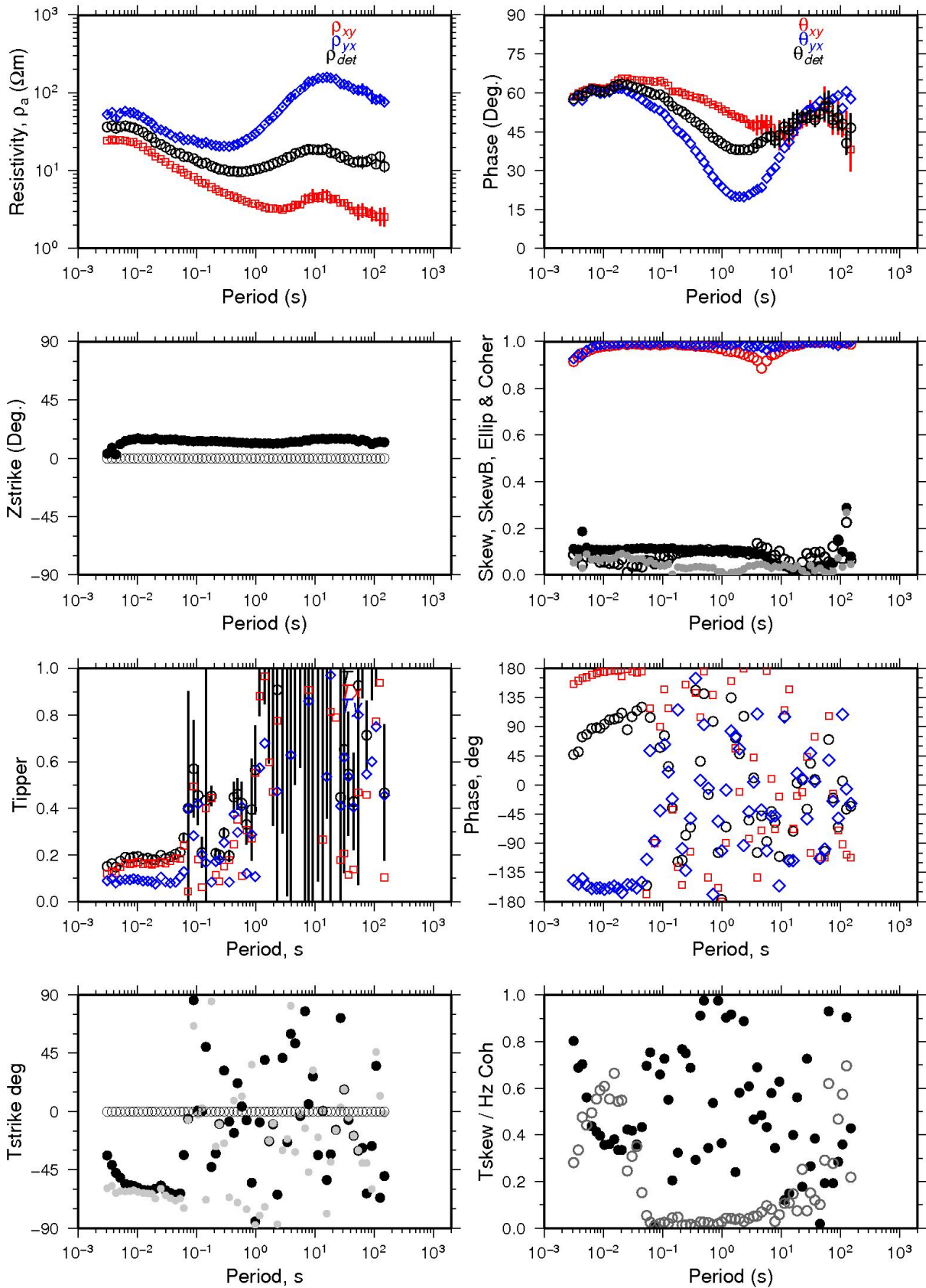
pkm

Skrá: PakMT54.EDI



PKM

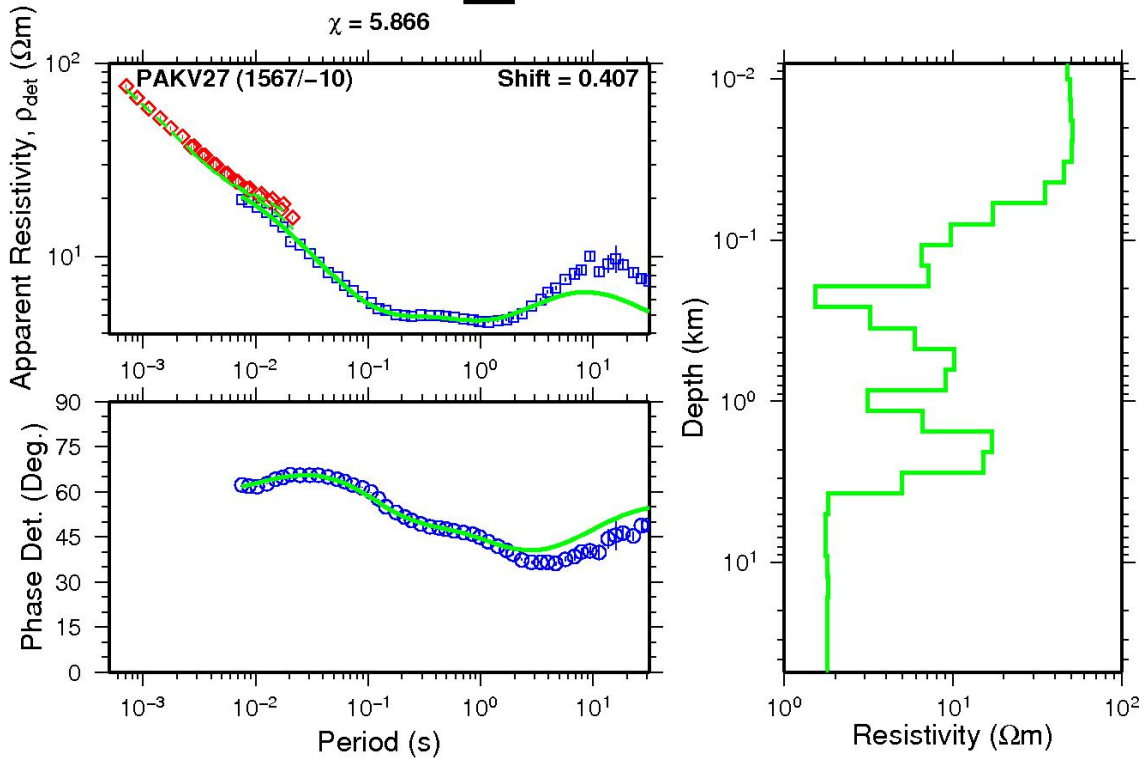
Skrá: PakMT55R.EDI



APPENDIX III: TEM and MT resistivity data from the Paka prospect and 1-D joint inversion of the MT and TEM profiles and the corresponding model curves

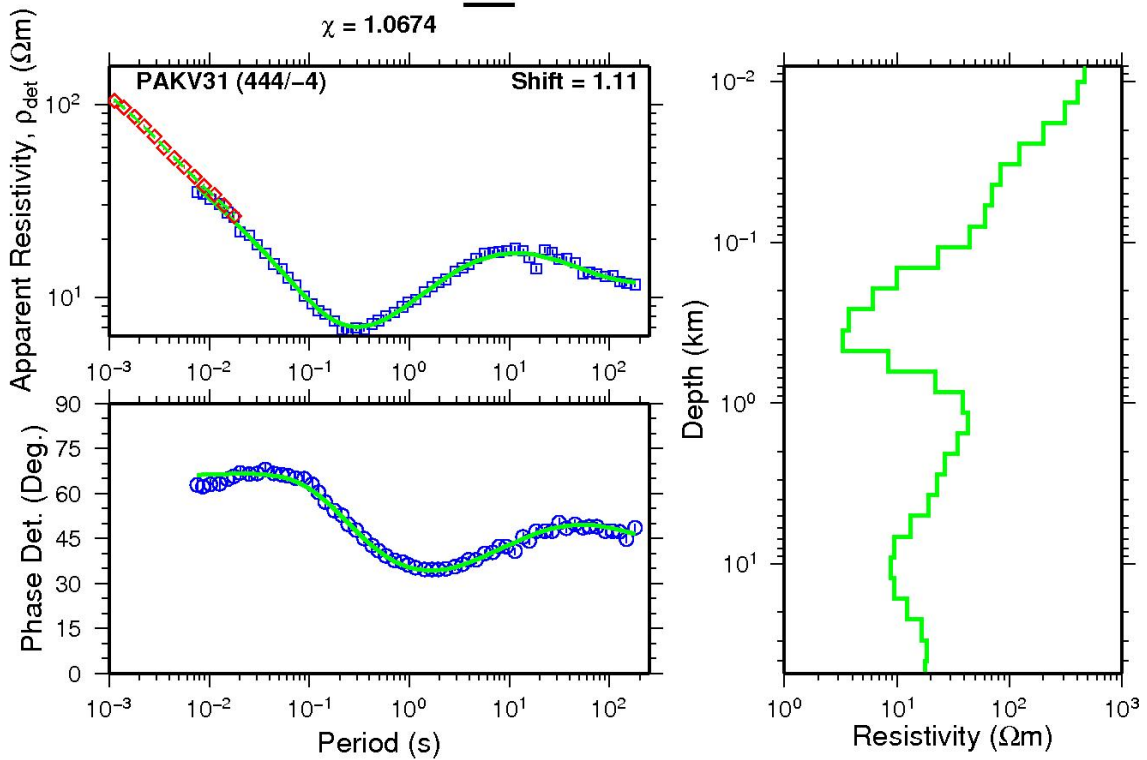
PAK27_0

$\chi = 5.866$



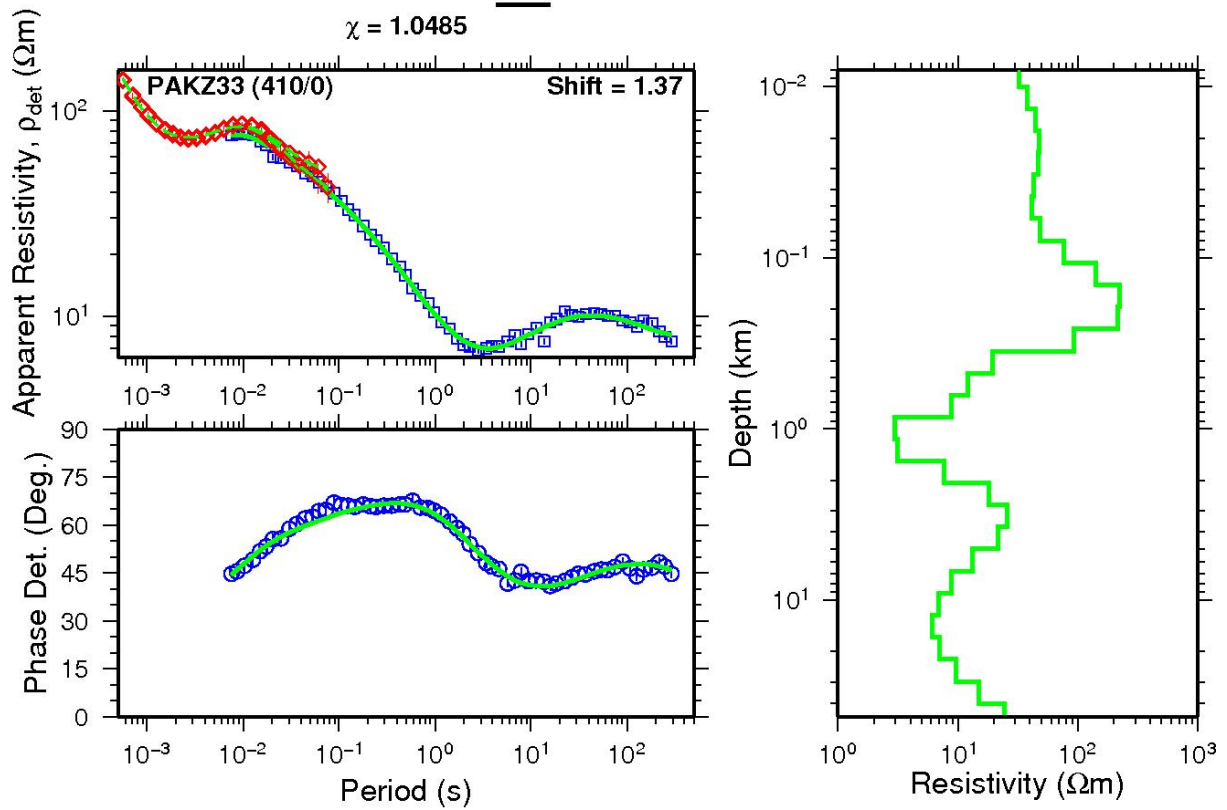
PAK31_0

$\chi = 1.0674$



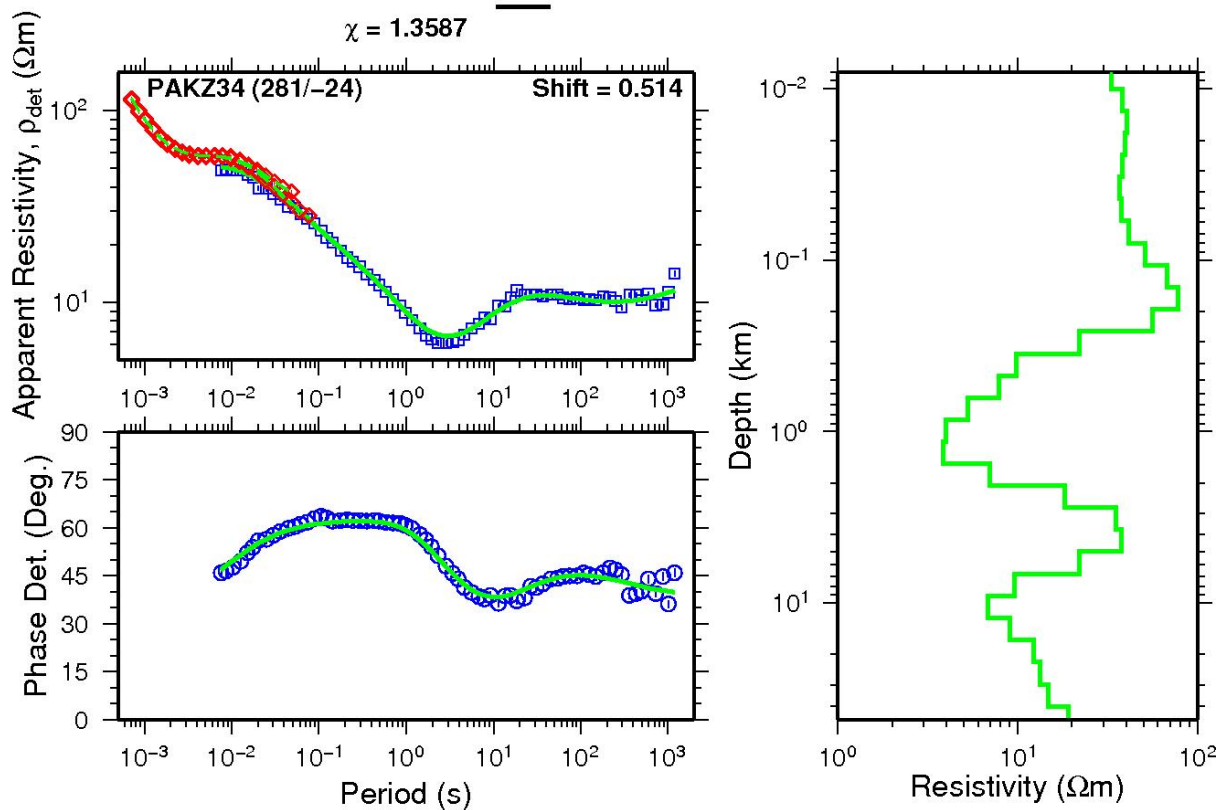
PAK33_o

$\chi = 1.0485$



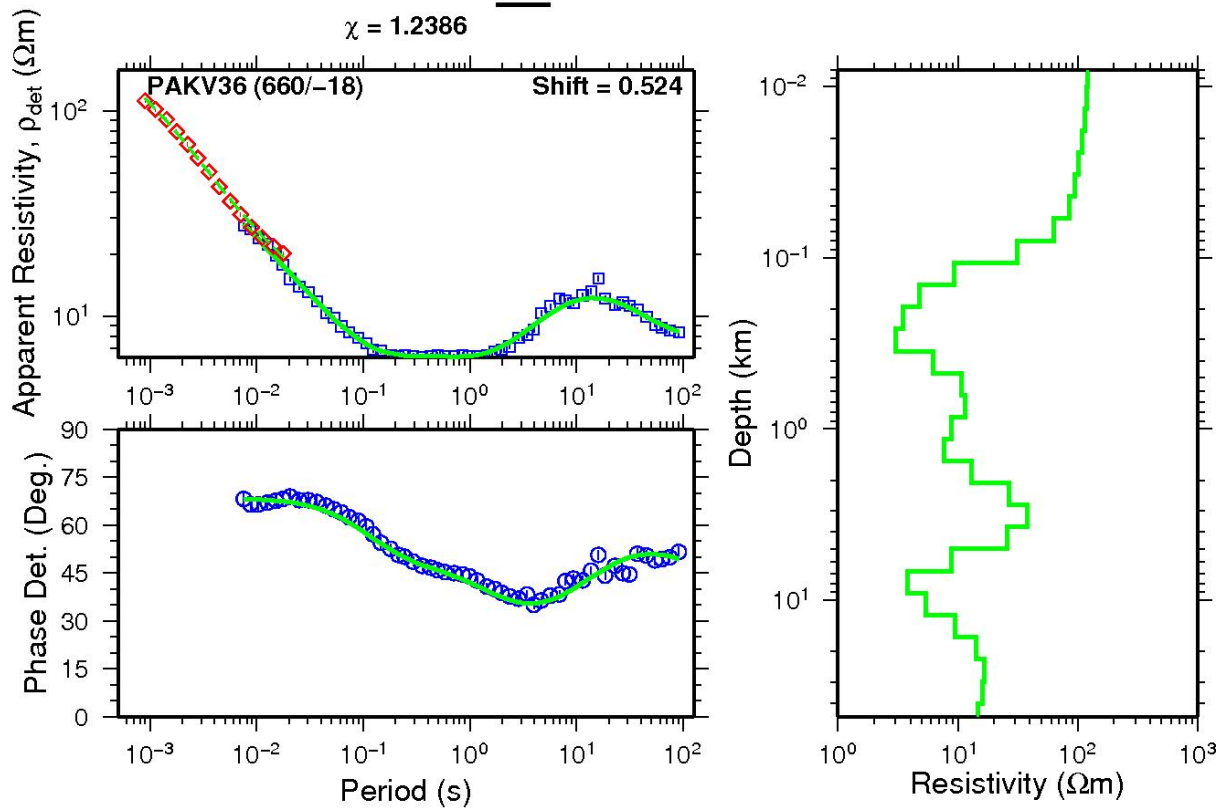
PAK34_o

$\chi = 1.3587$



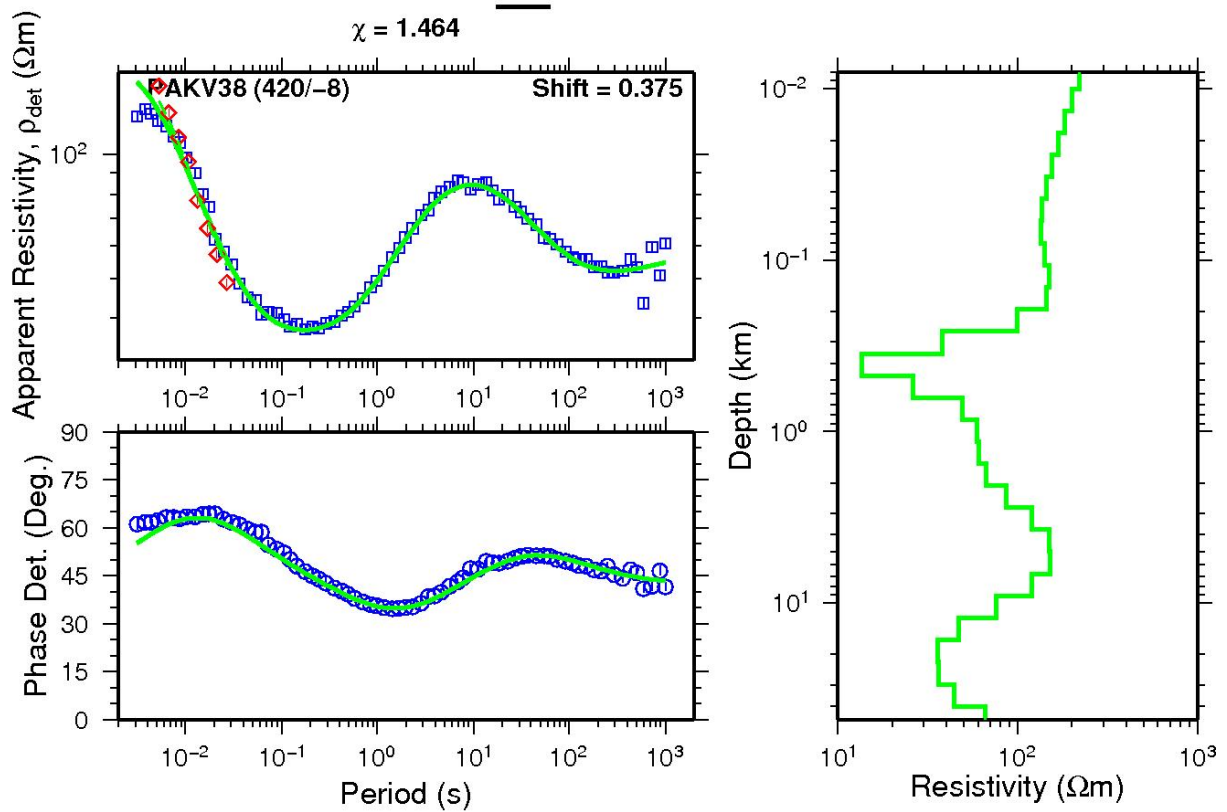
PAK36_o

$\chi = 1.2386$



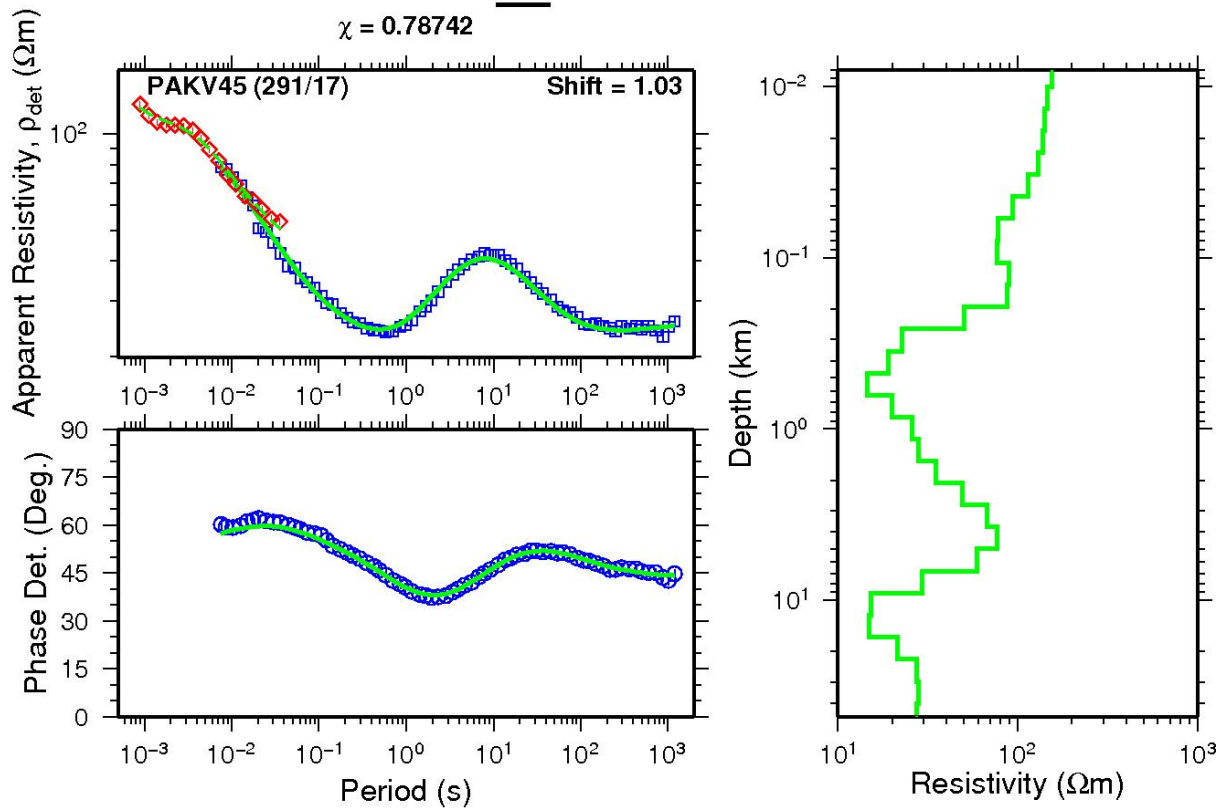
PAK38_o

$\chi = 1.464$



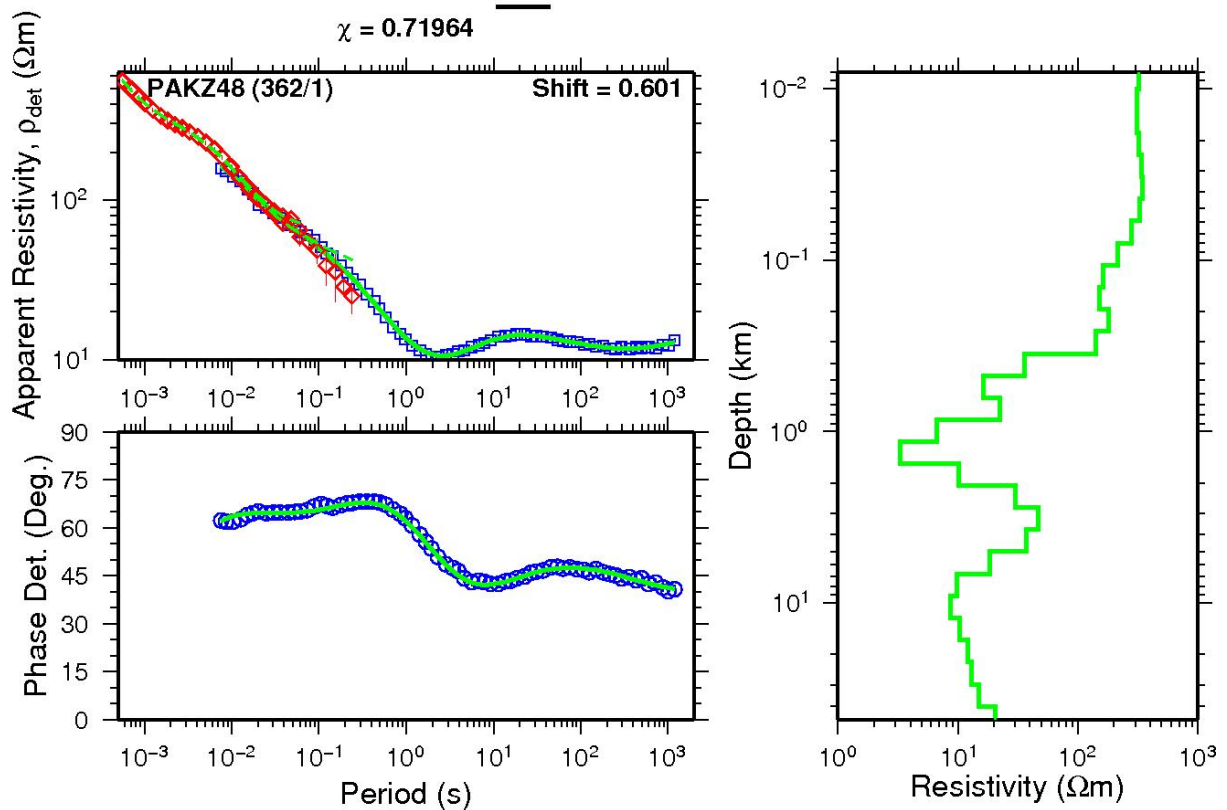
PAK45_o

$\chi = 0.78742$



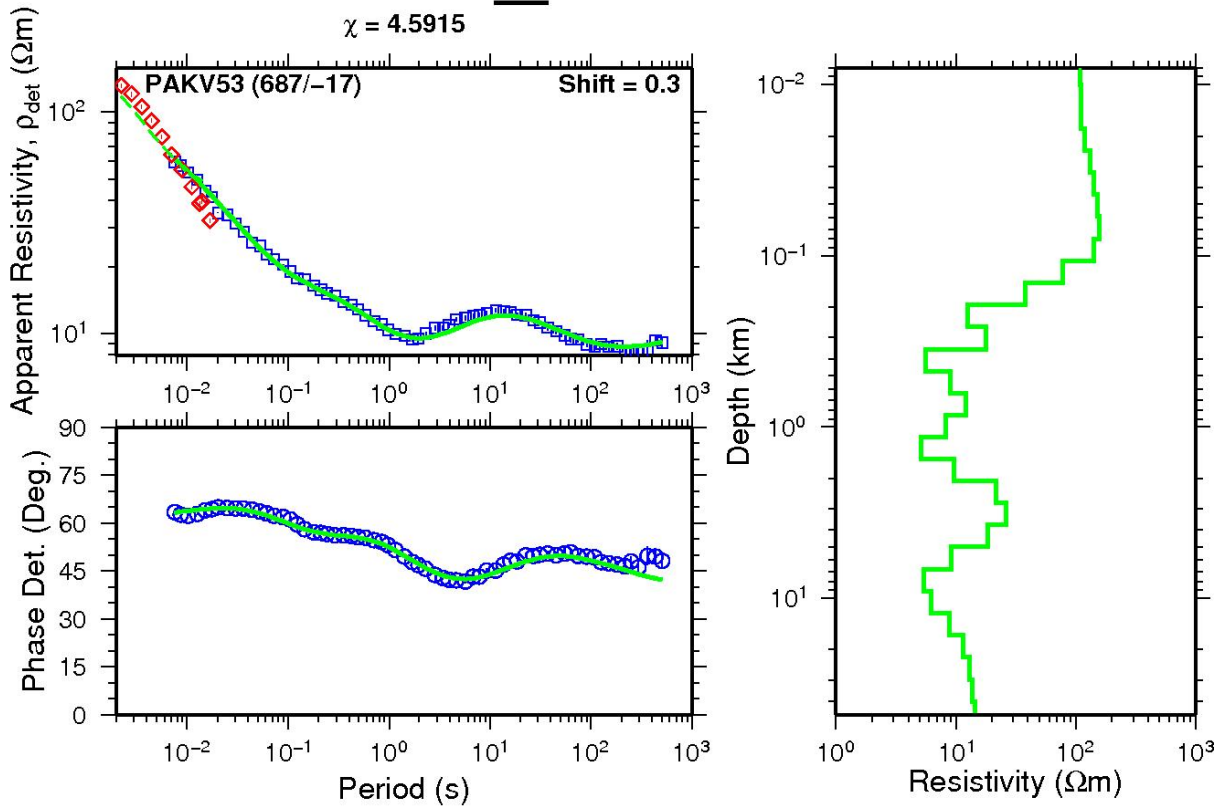
PAK48_o

$\chi = 0.71964$

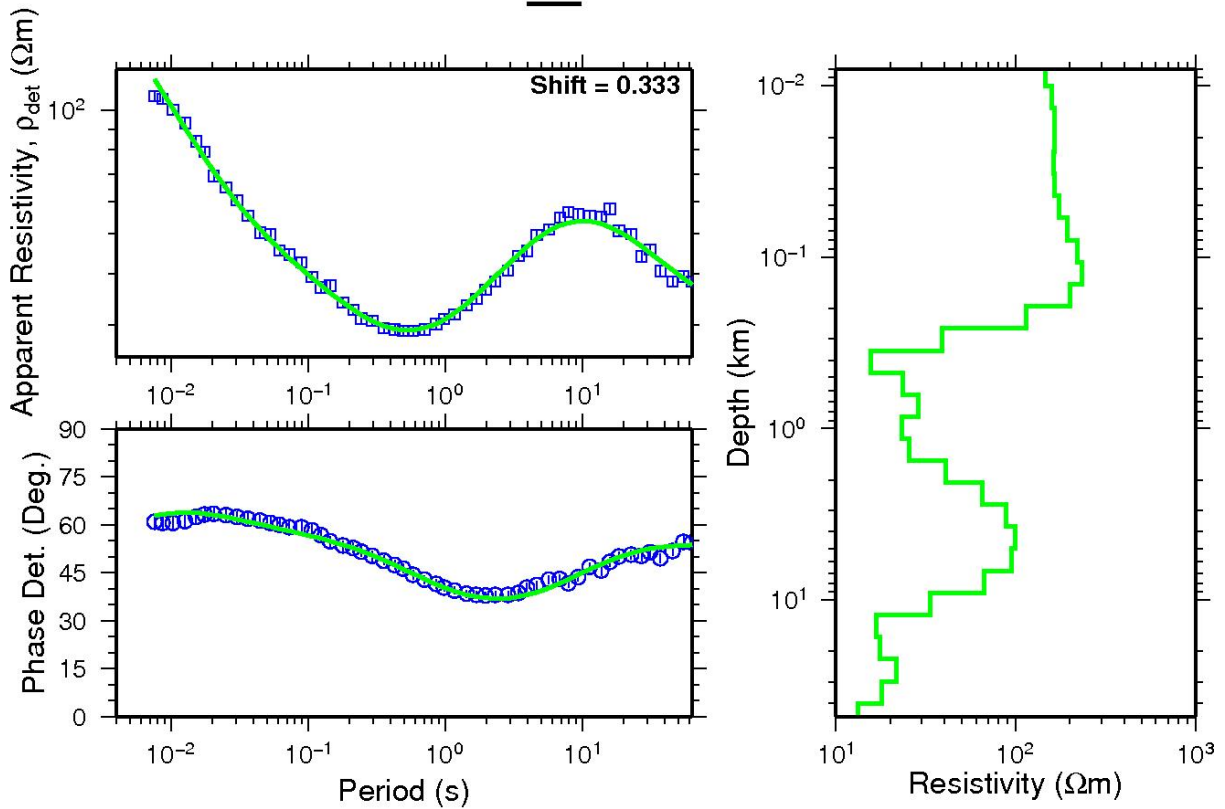


PAK53_o

$\chi = 4.5915$

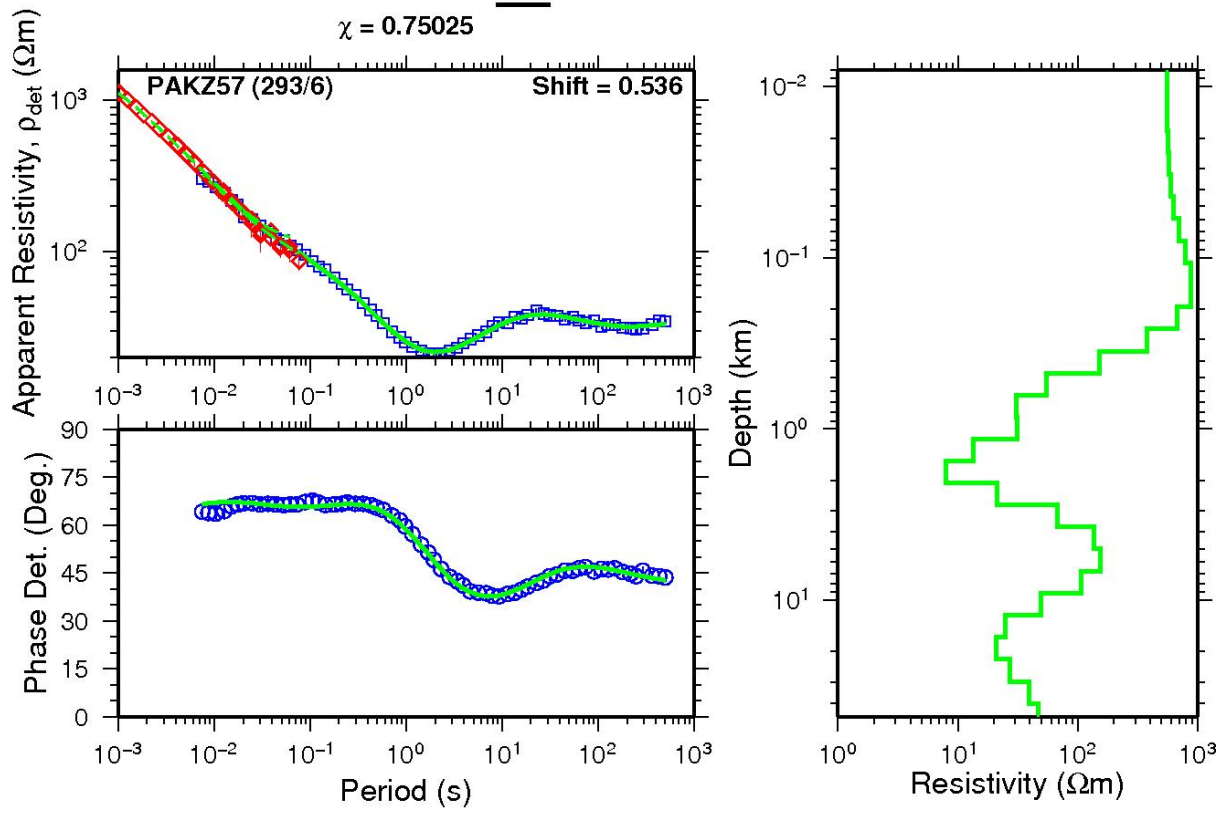


PAK55R_o



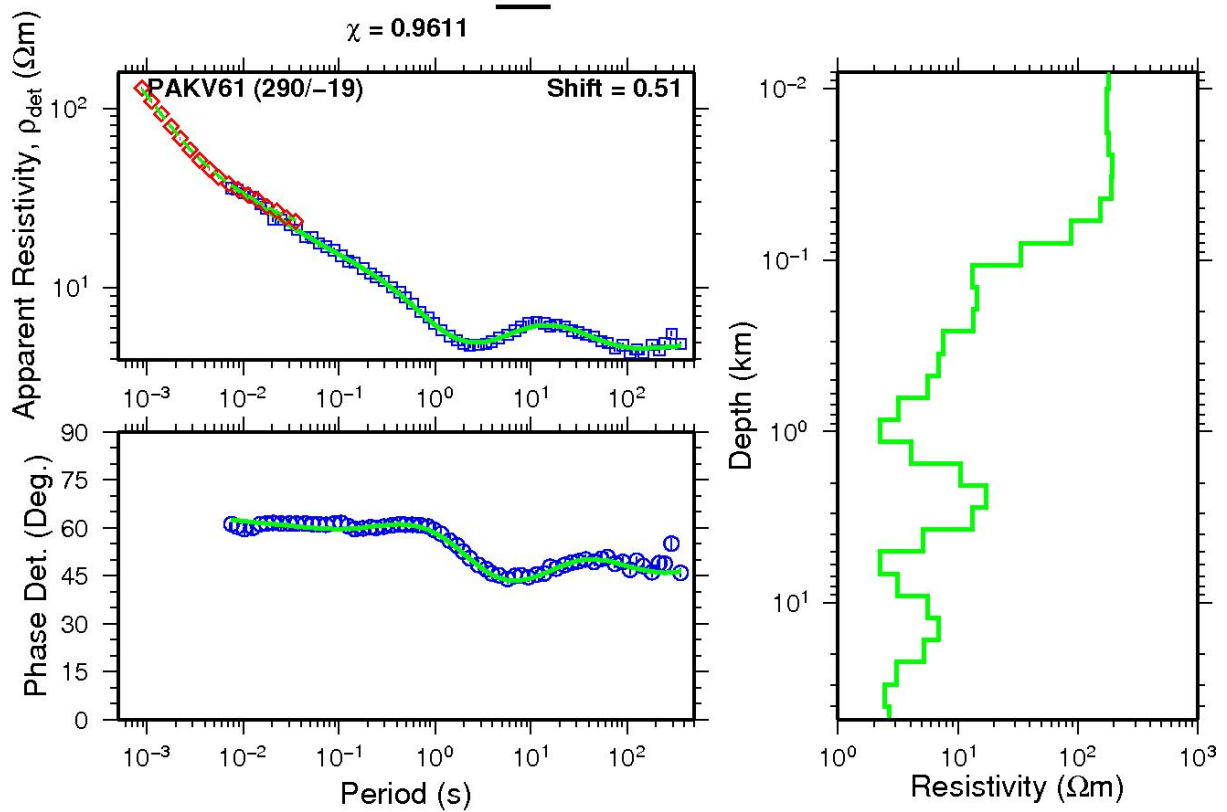
PAK57_o

$\chi = 0.75025$



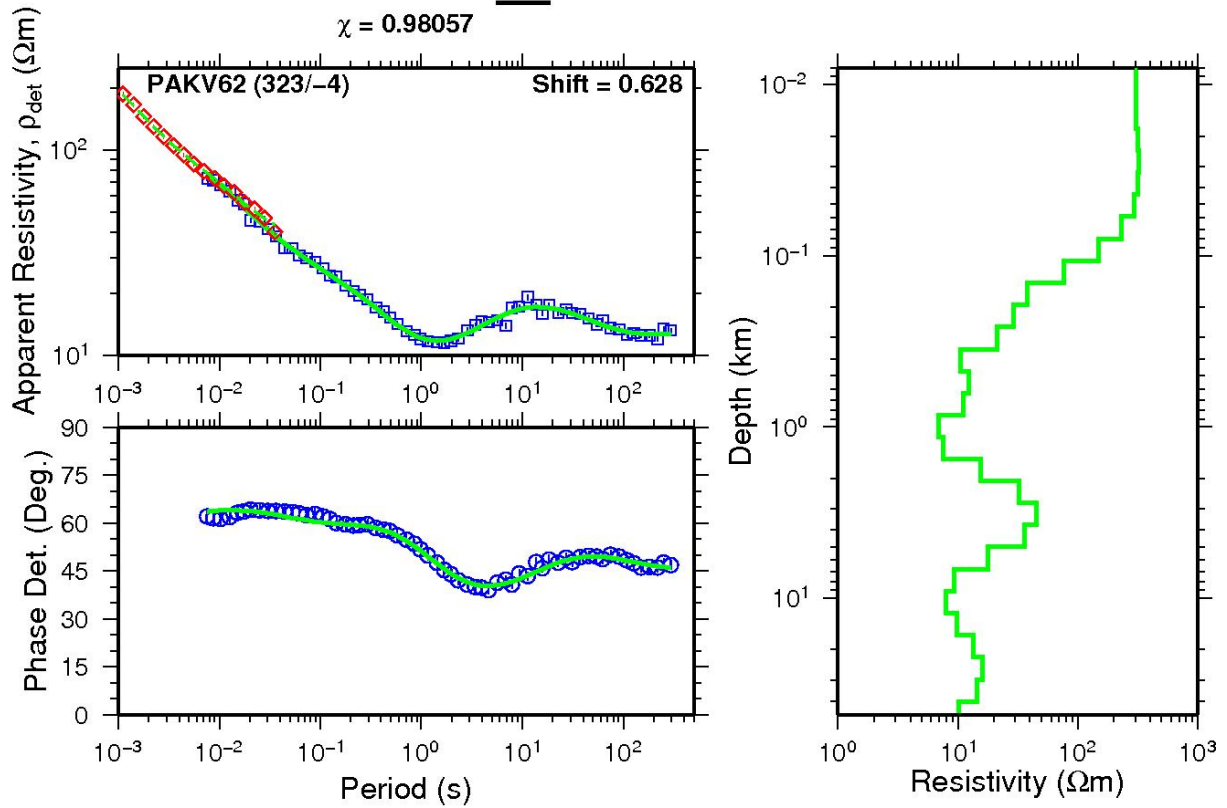
PAK61_o

$\chi = 0.9611$



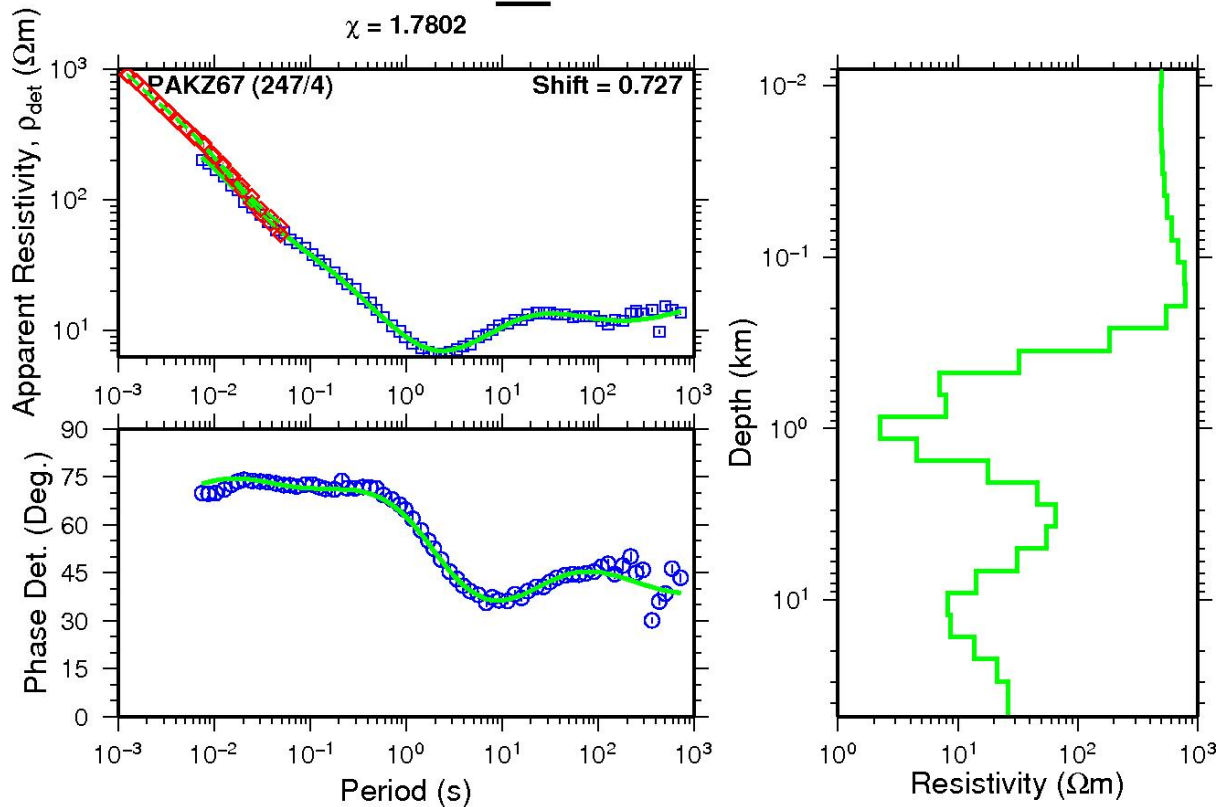
PAK62_o

$\chi = 0.98057$



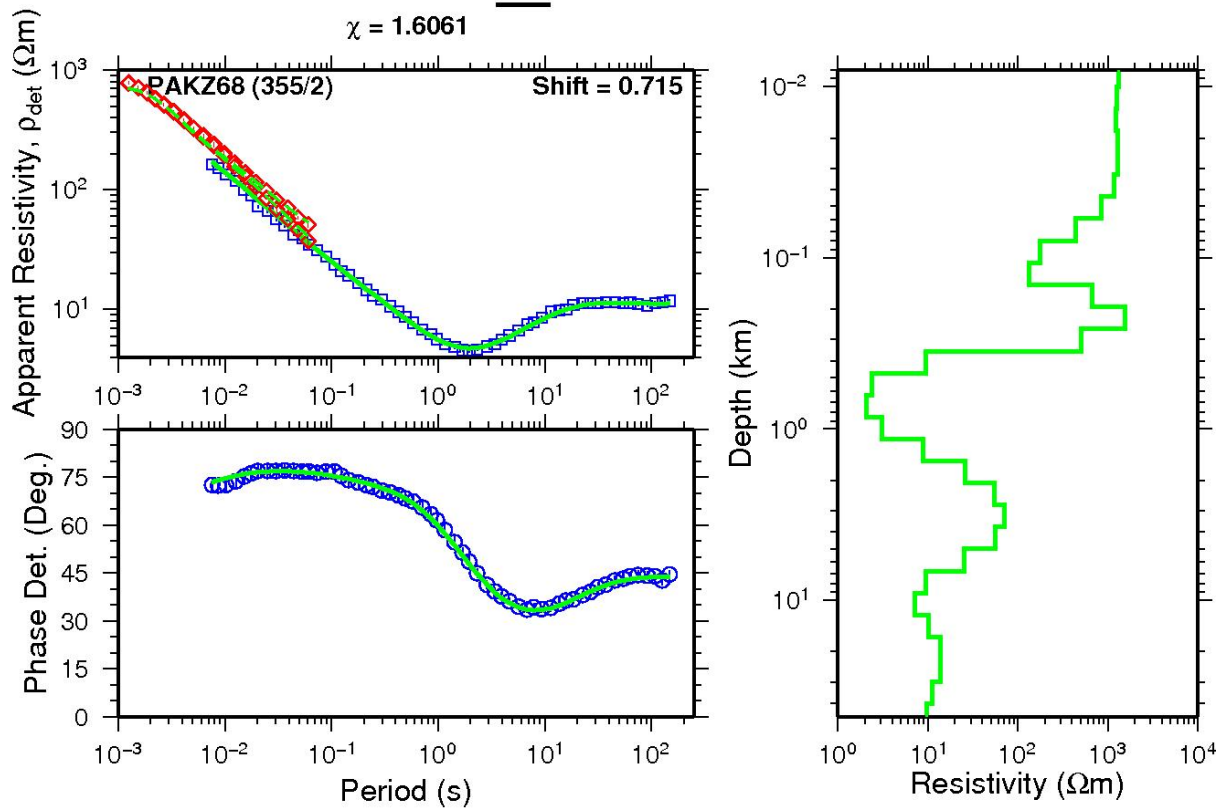
PAK67_o

$\chi = 1.7802$



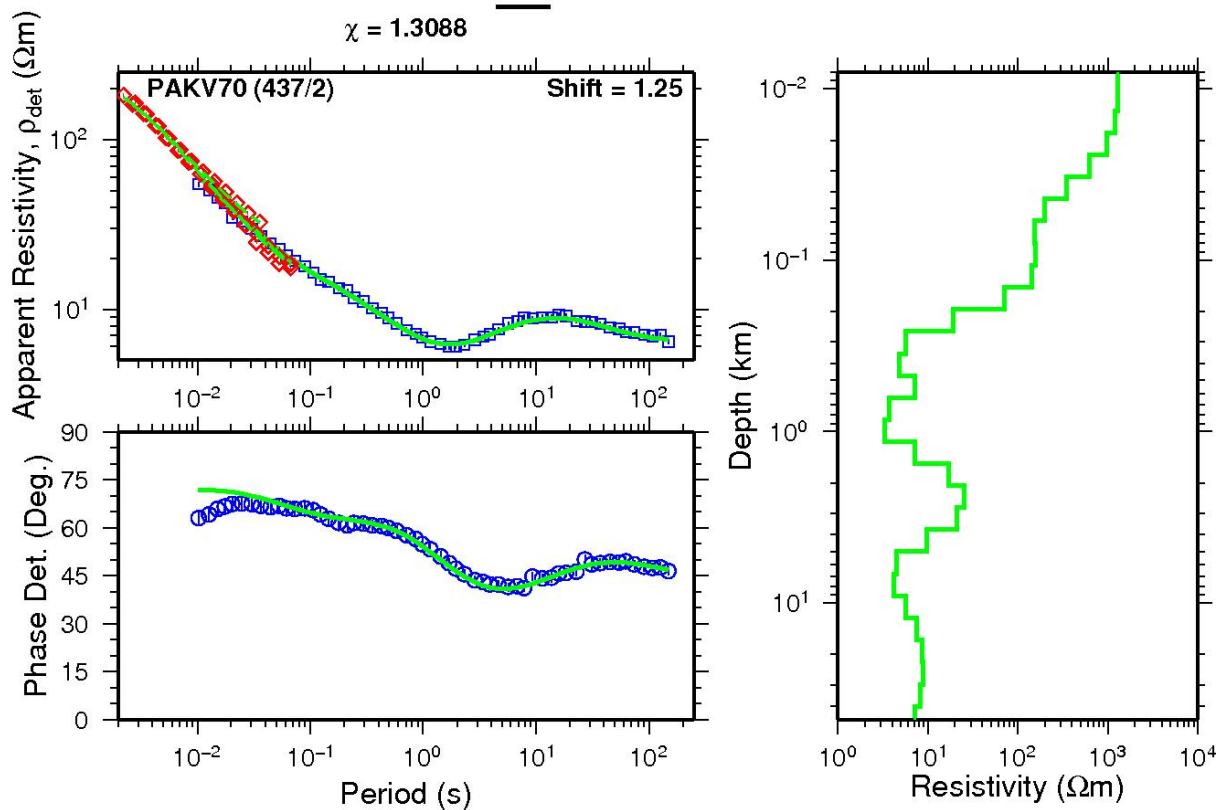
PAK68_o

$\chi = 1.6061$



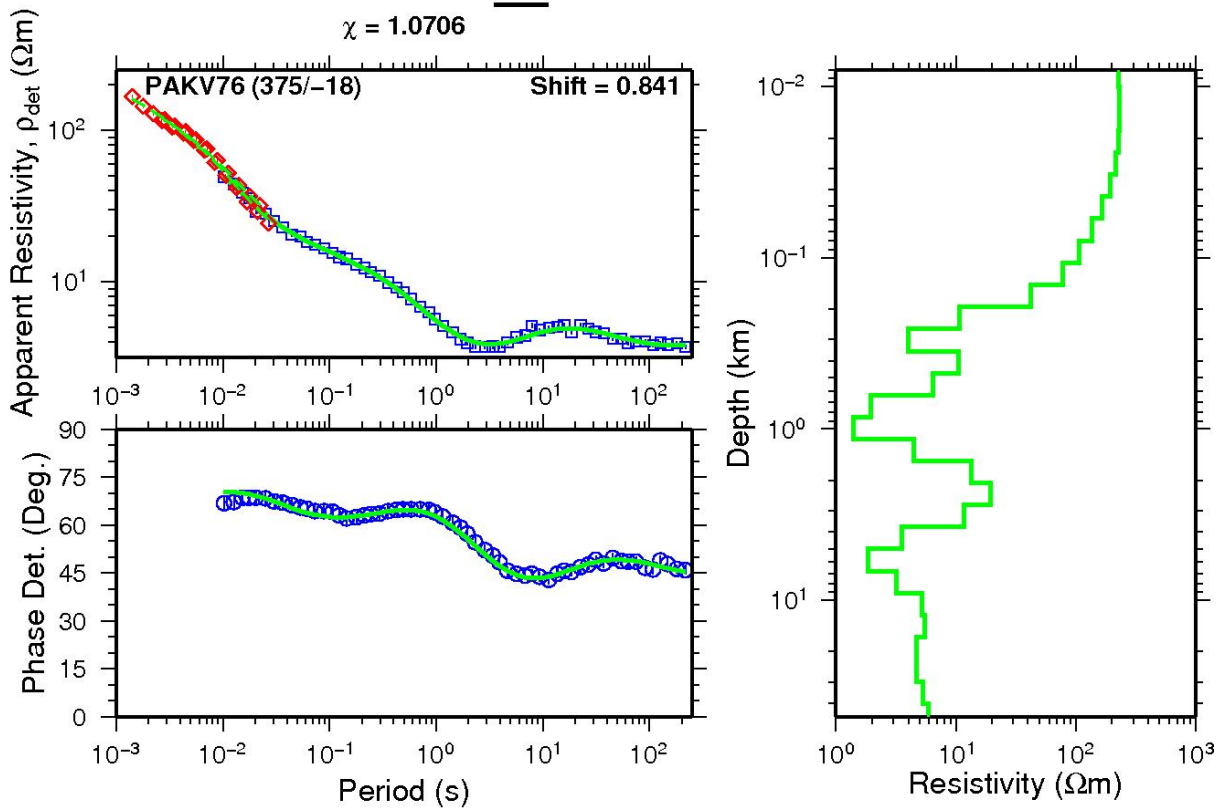
PAK70_o

$\chi = 1.3088$



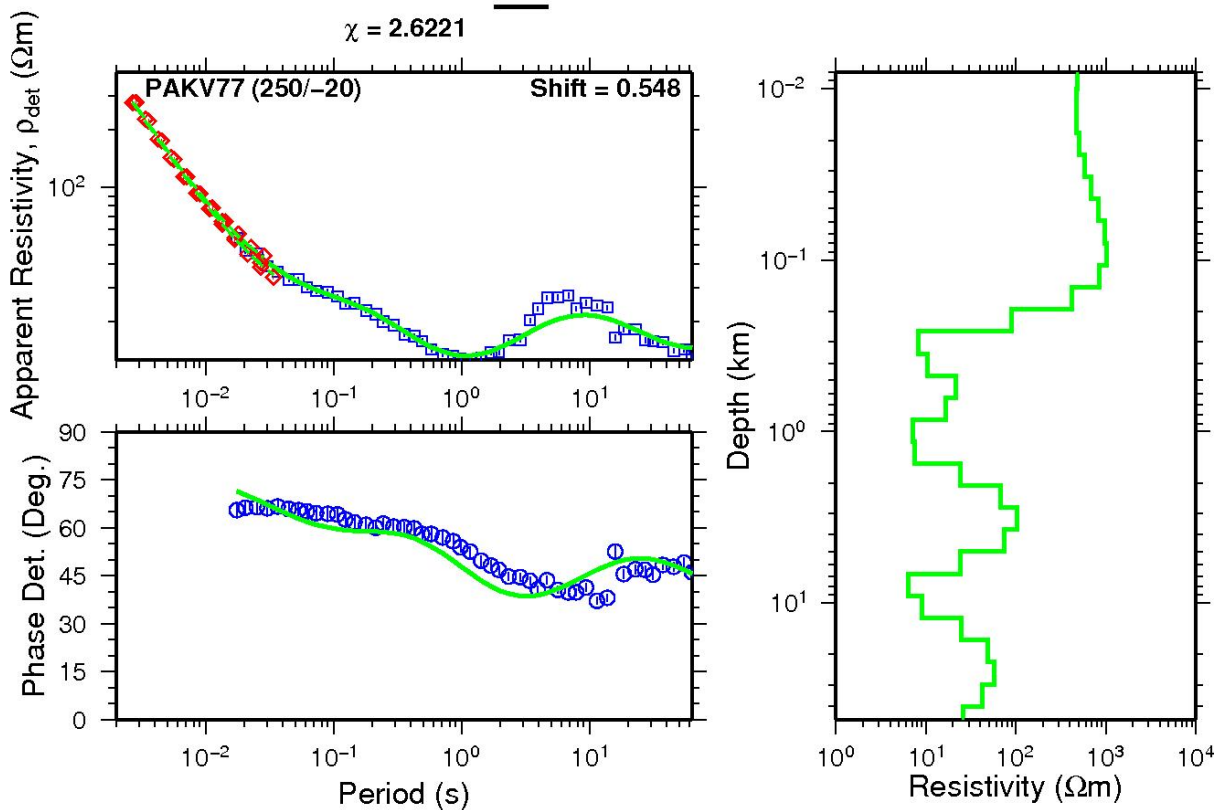
PAK76_o

$\chi = 1.0706$



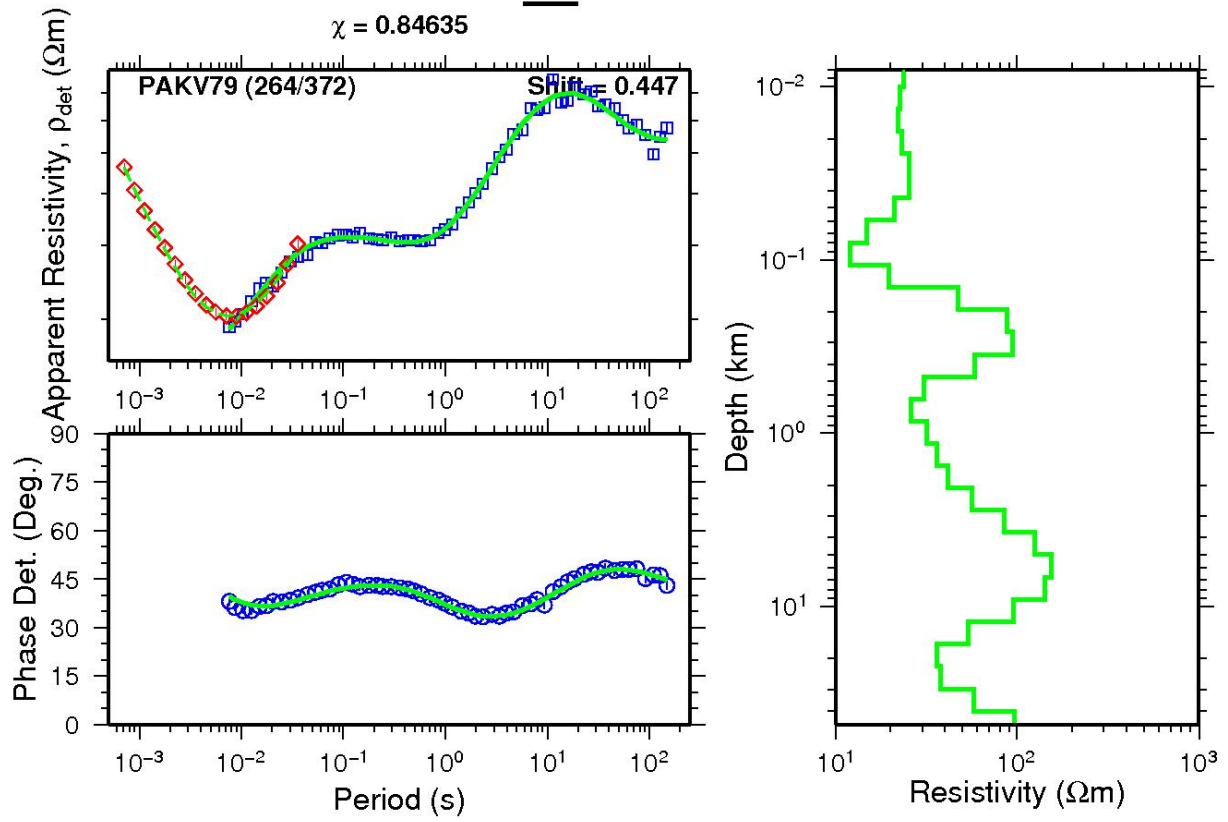
PAK77_o

$\chi = 2.6221$



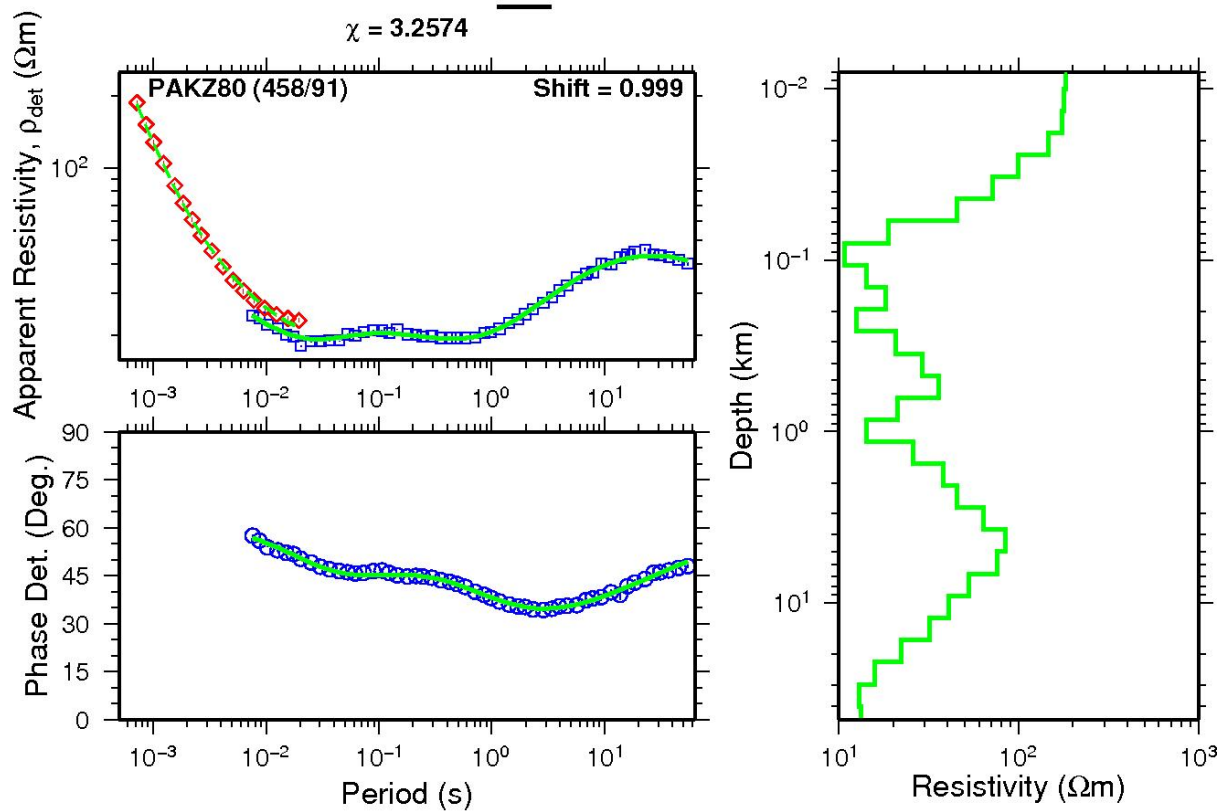
PAK79R_o

$\chi = 0.84635$



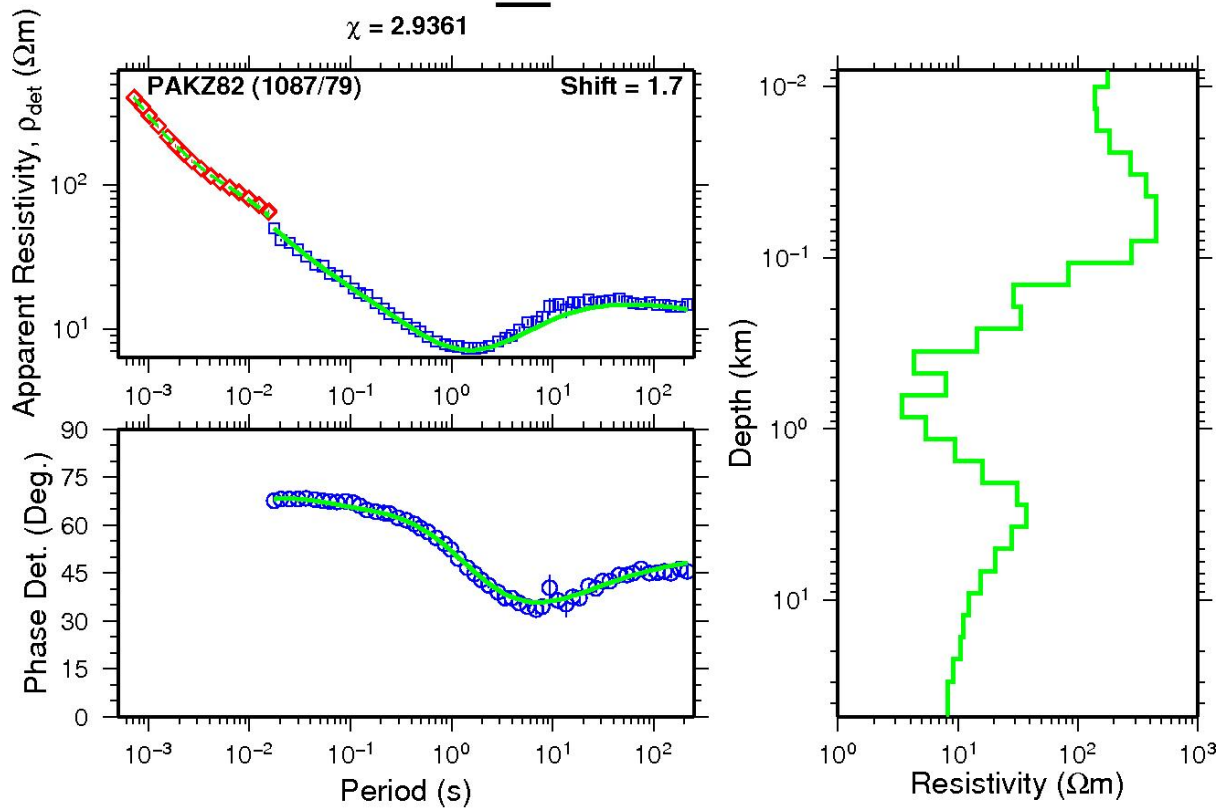
PAK80_o

$\chi = 3.2574$



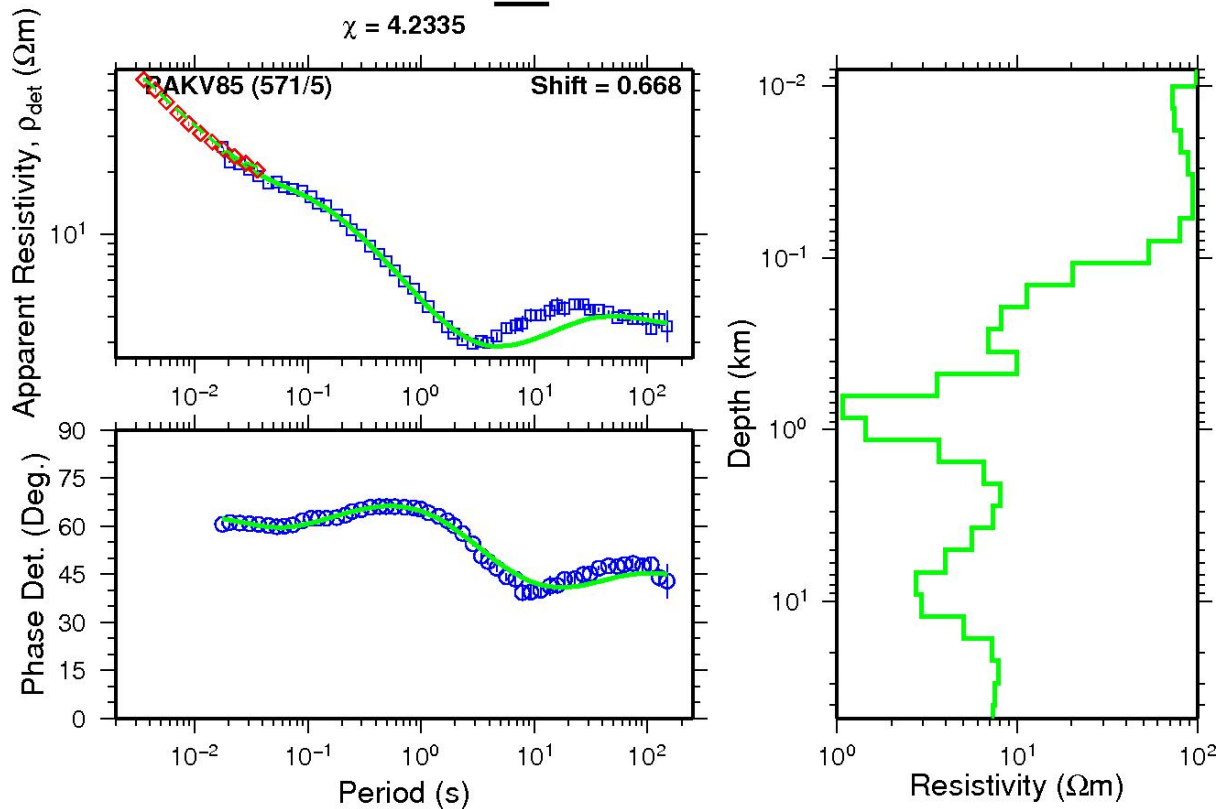
PAK82_o

$\chi = 2.9361$



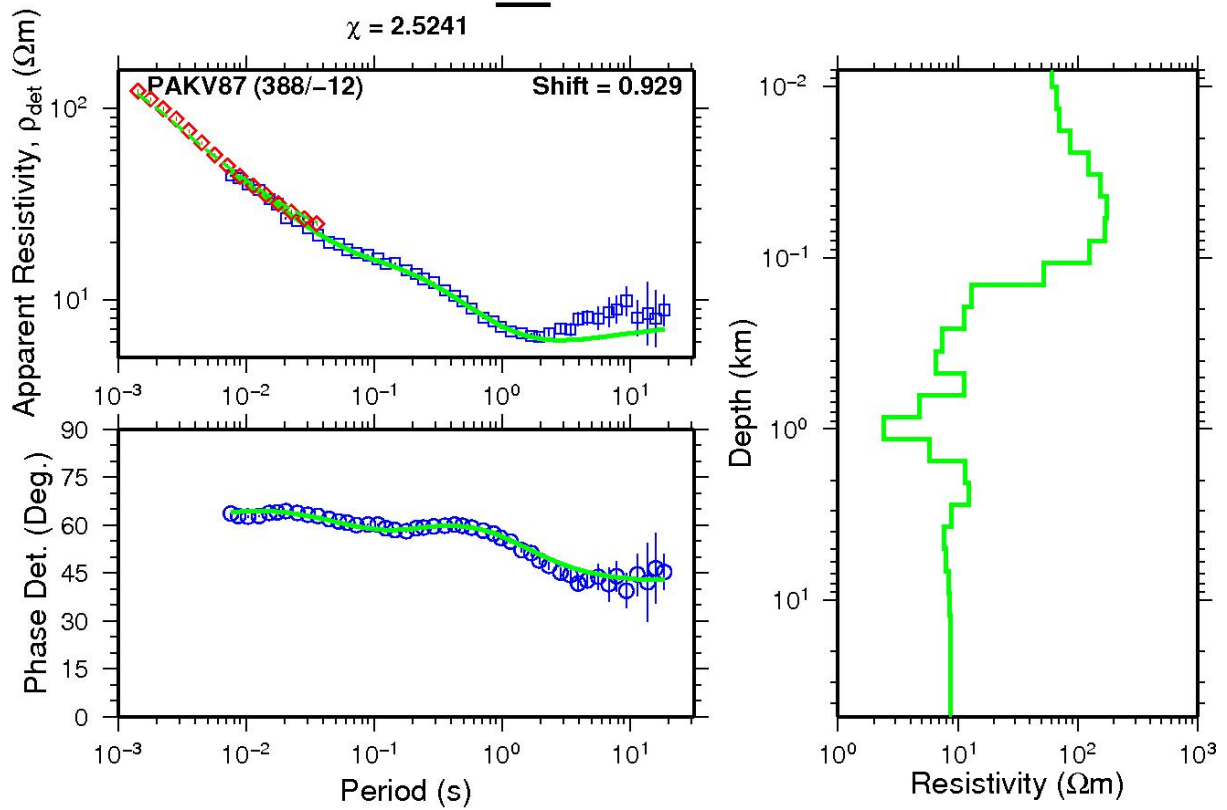
PAK85_o

$\chi = 4.2335$



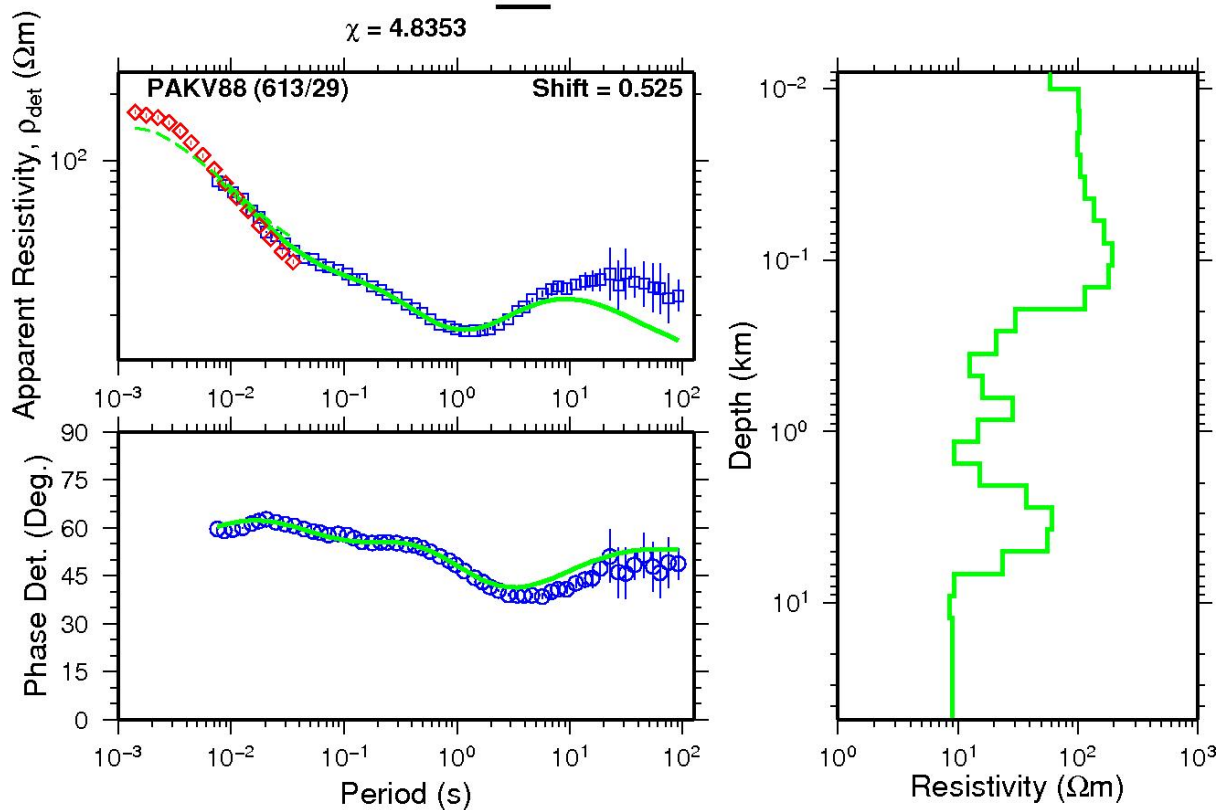
PAK87_o

$\chi = 2.5241$



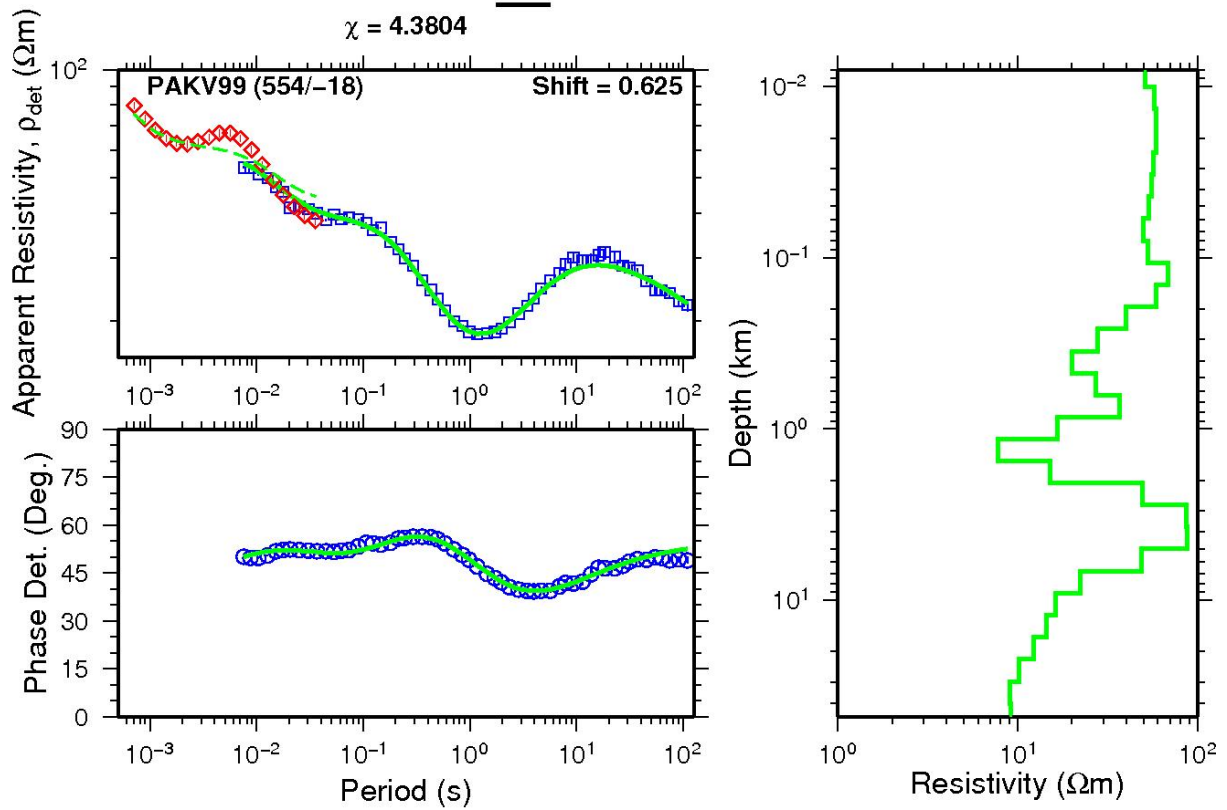
PAK88_o

$\chi = 4.8353$



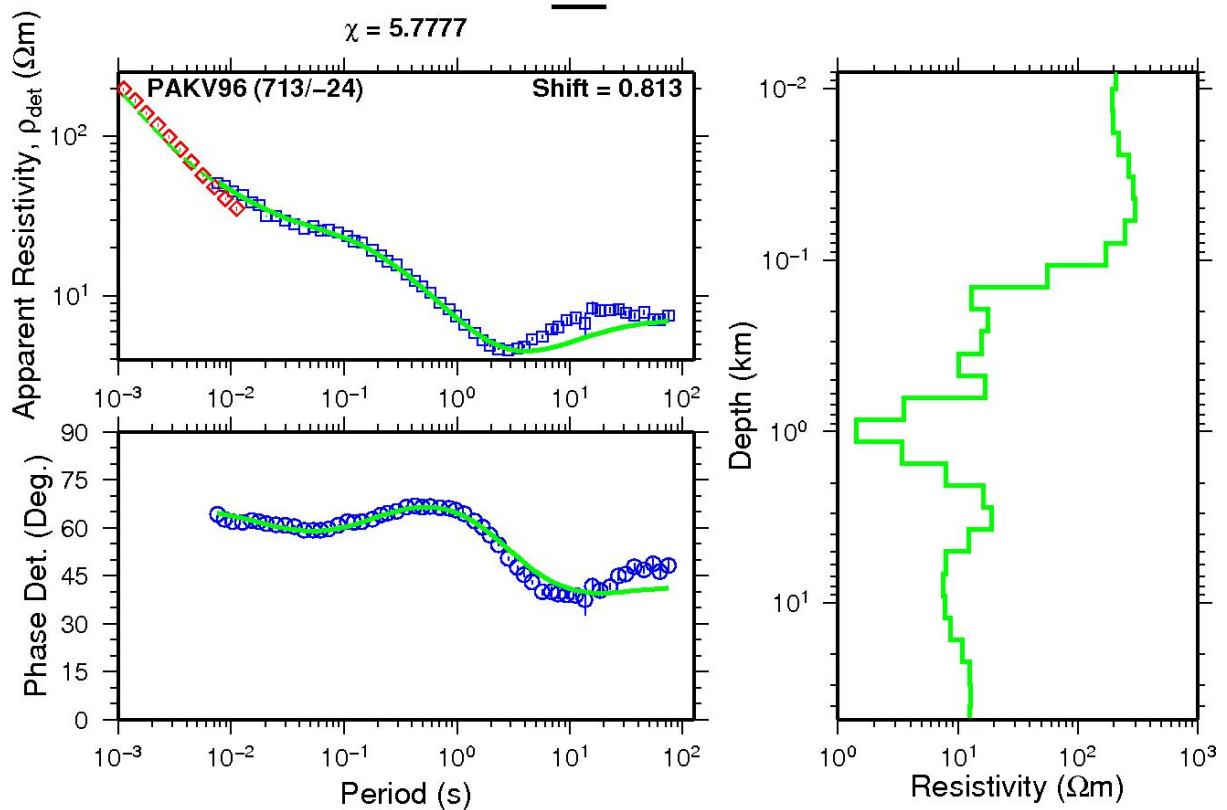
PAK99_o

$\chi = 4.3804$



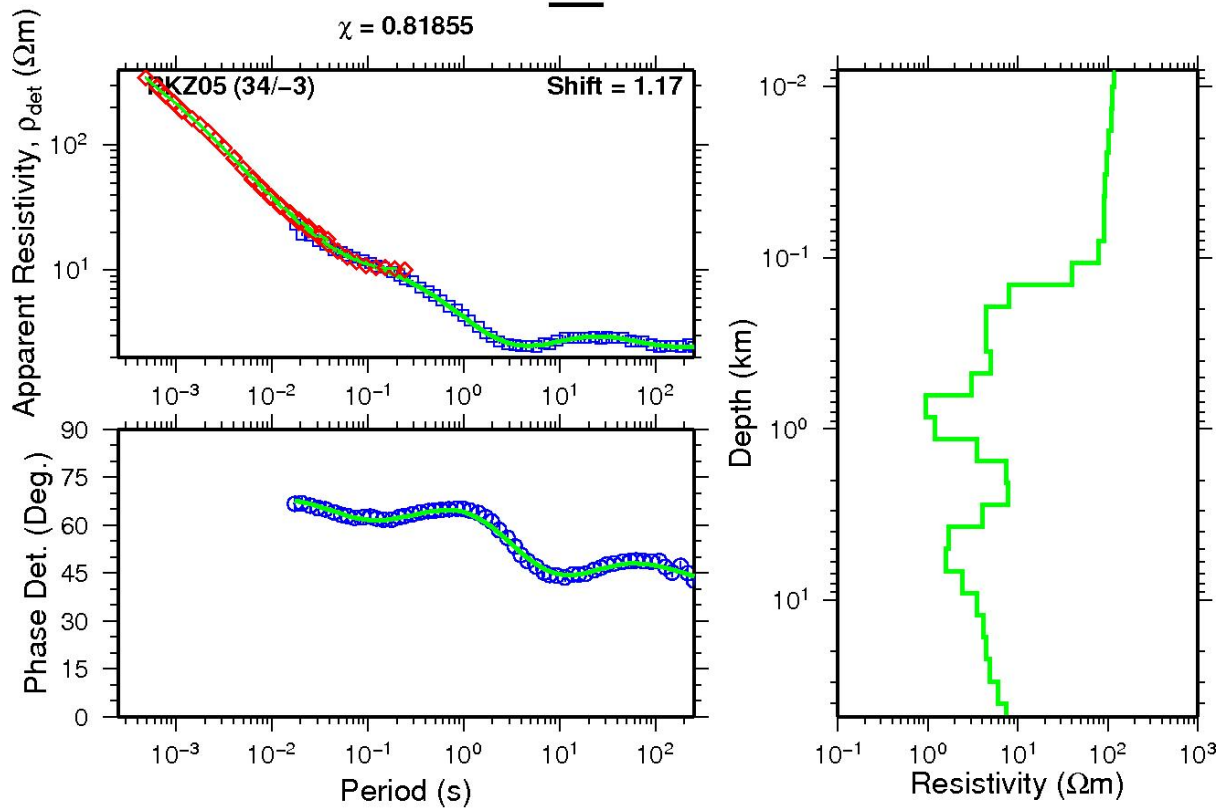
PAK105B_o

$\chi = 5.7777$



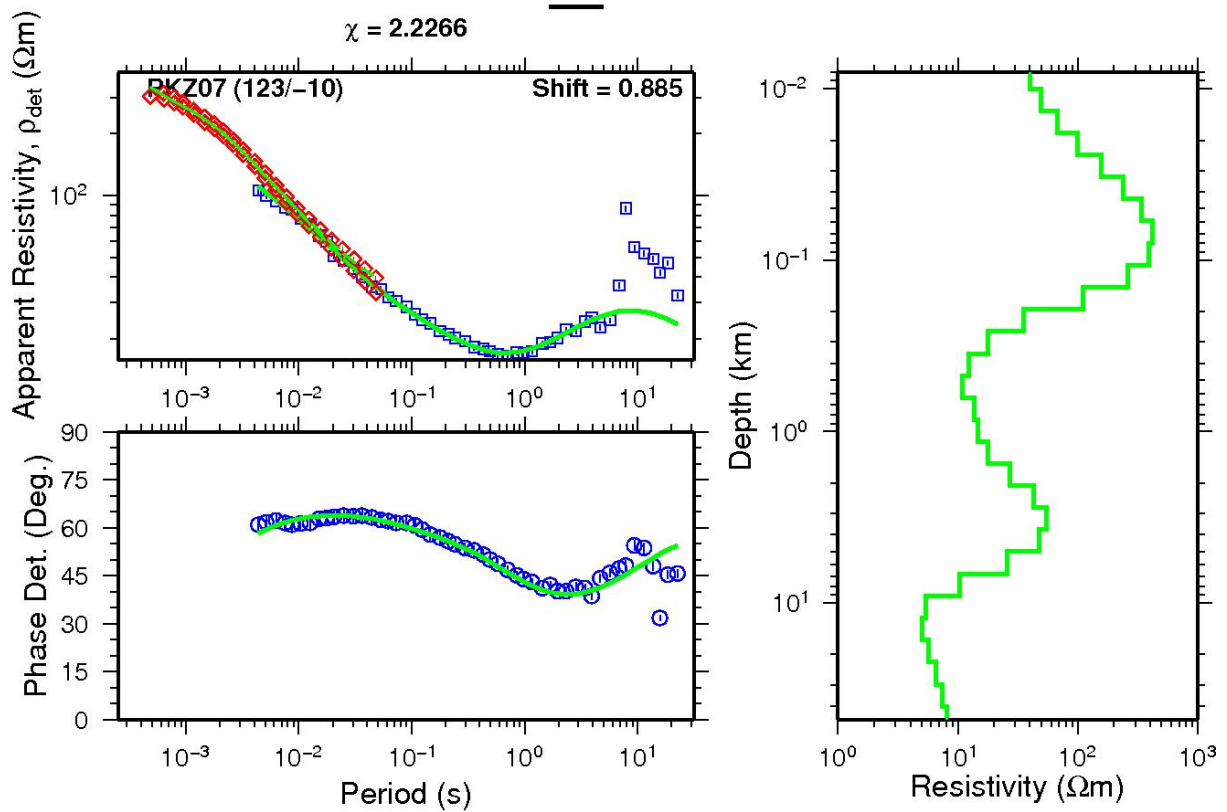
PakMT01_o

$\chi = 0.81855$



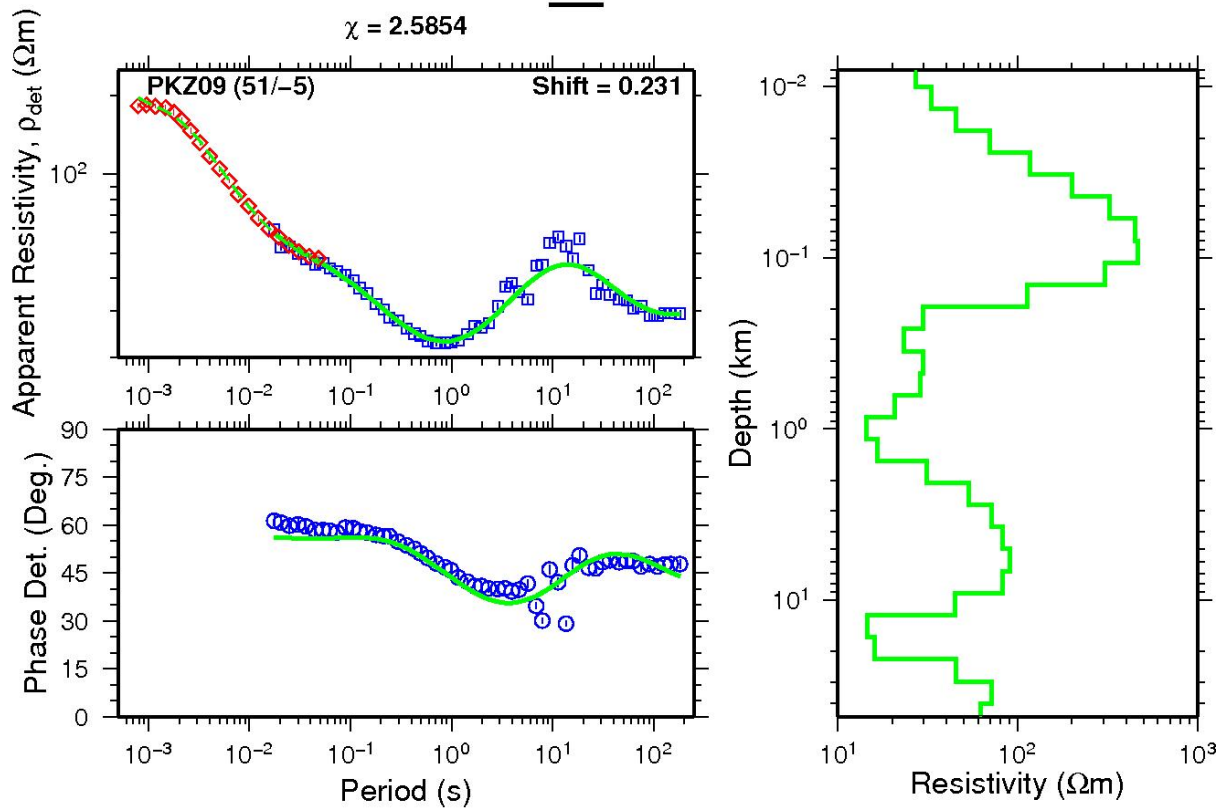
PakMT03_o

$\chi = 2.2266$



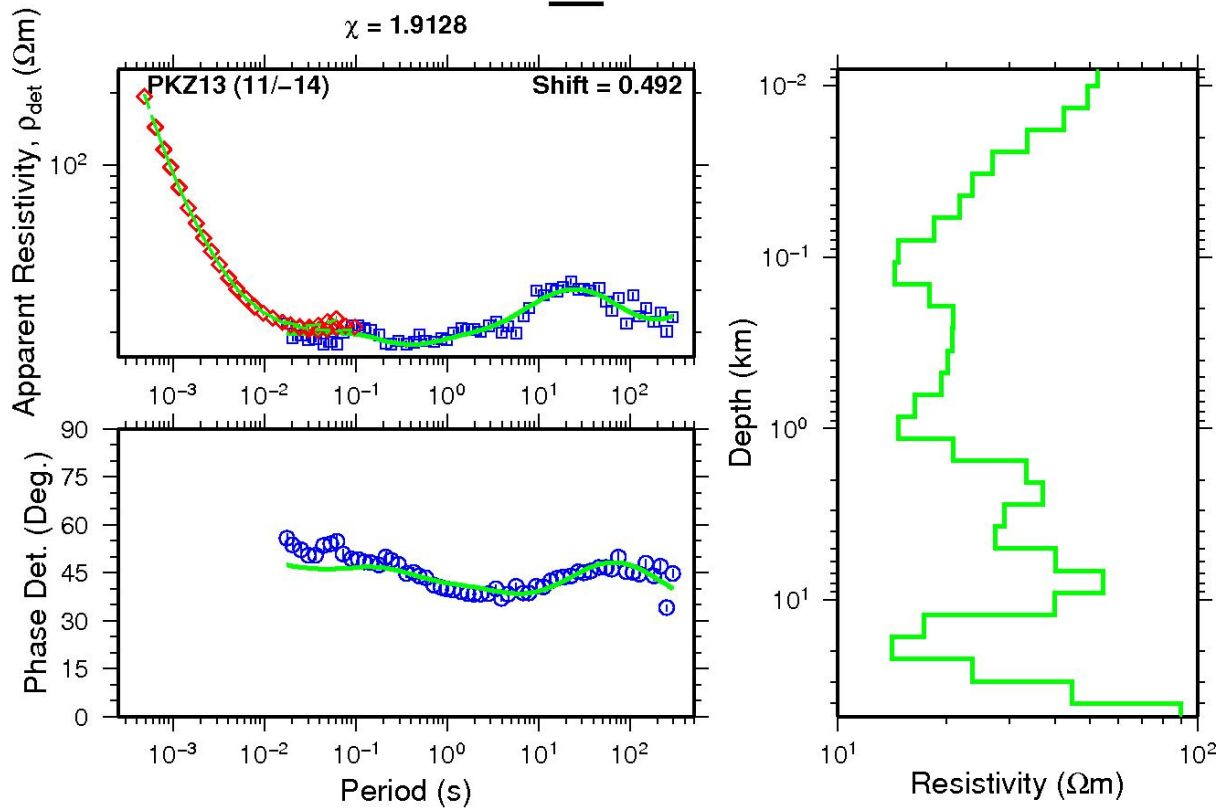
PakMT05_o

$\chi = 2.5854$



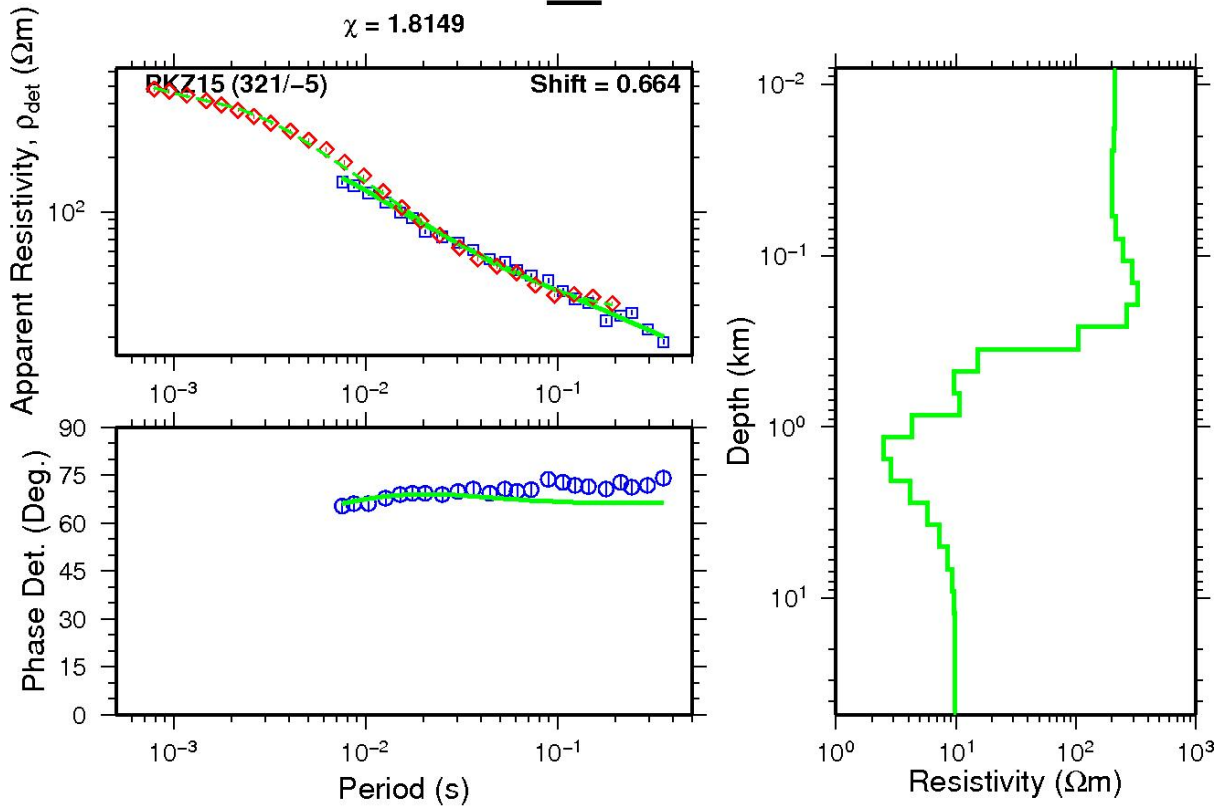
PakMT09_o

$\chi = 1.9128$



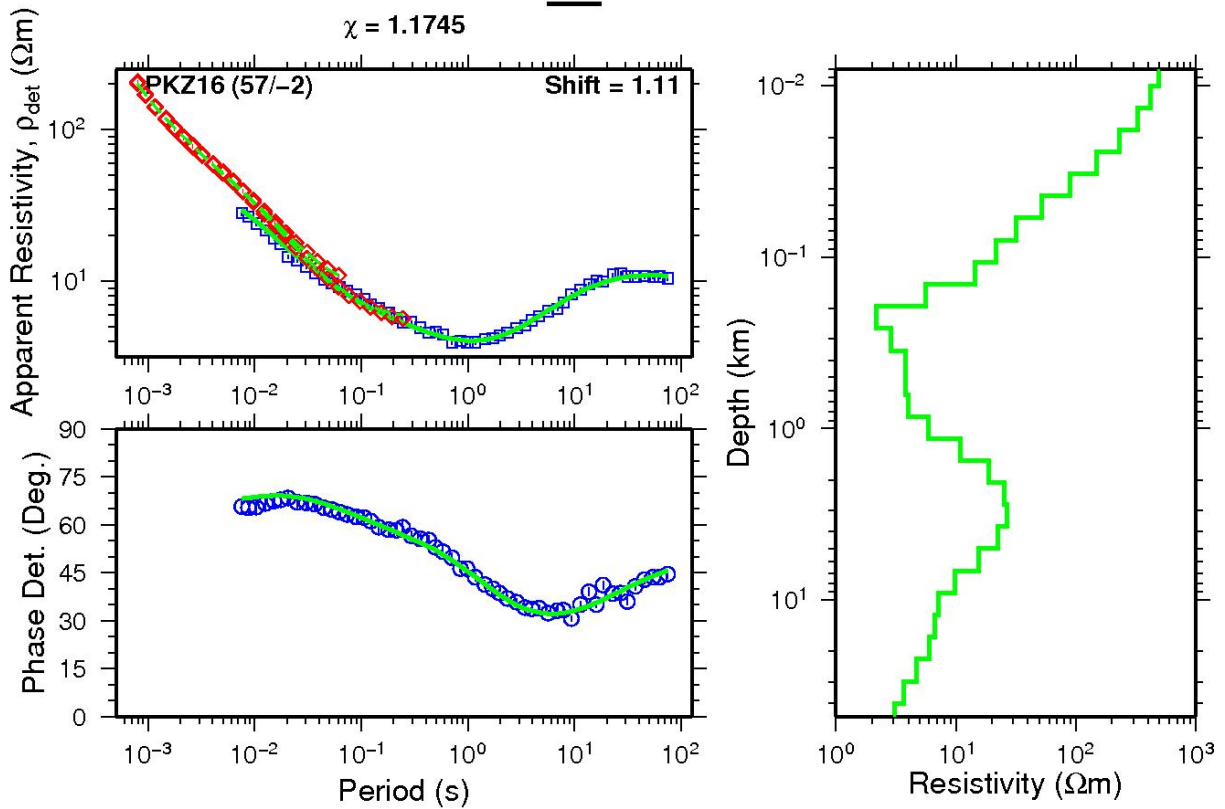
PakMT11_o

$\chi = 1.8149$



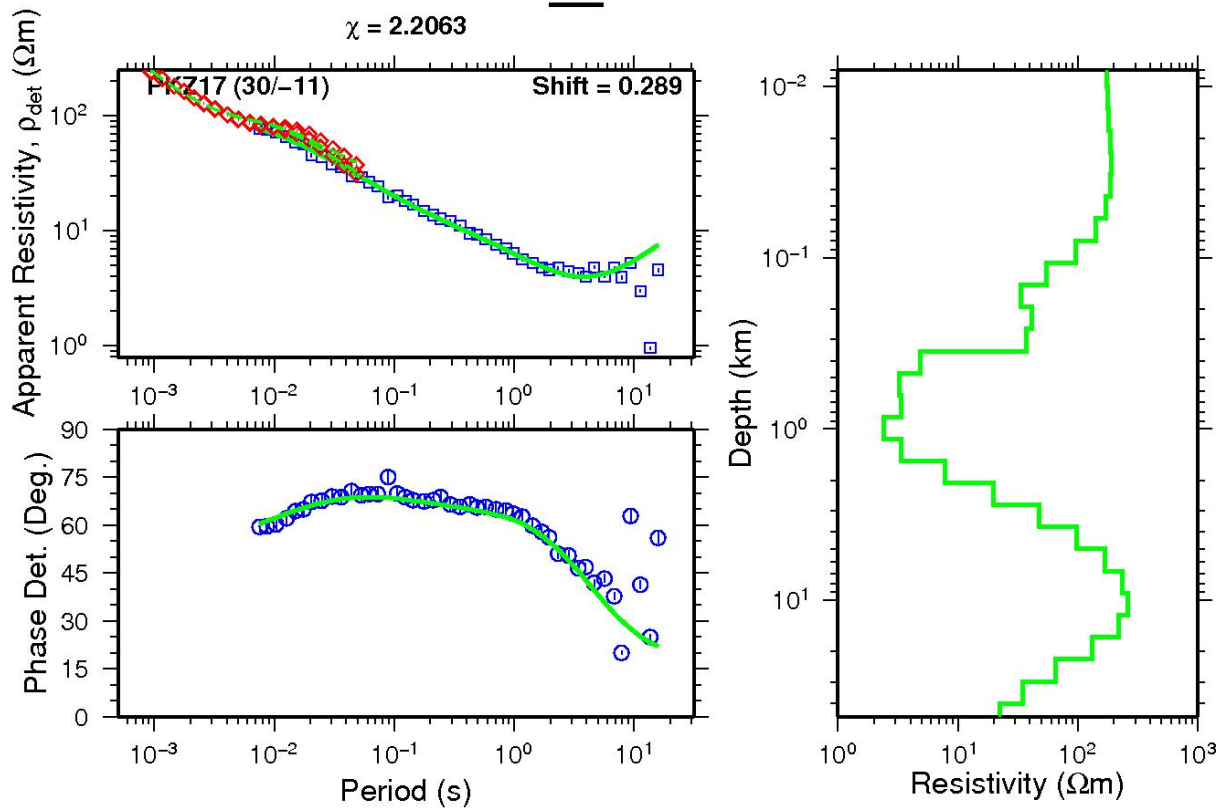
PakMT12_o

$\chi = 1.1745$

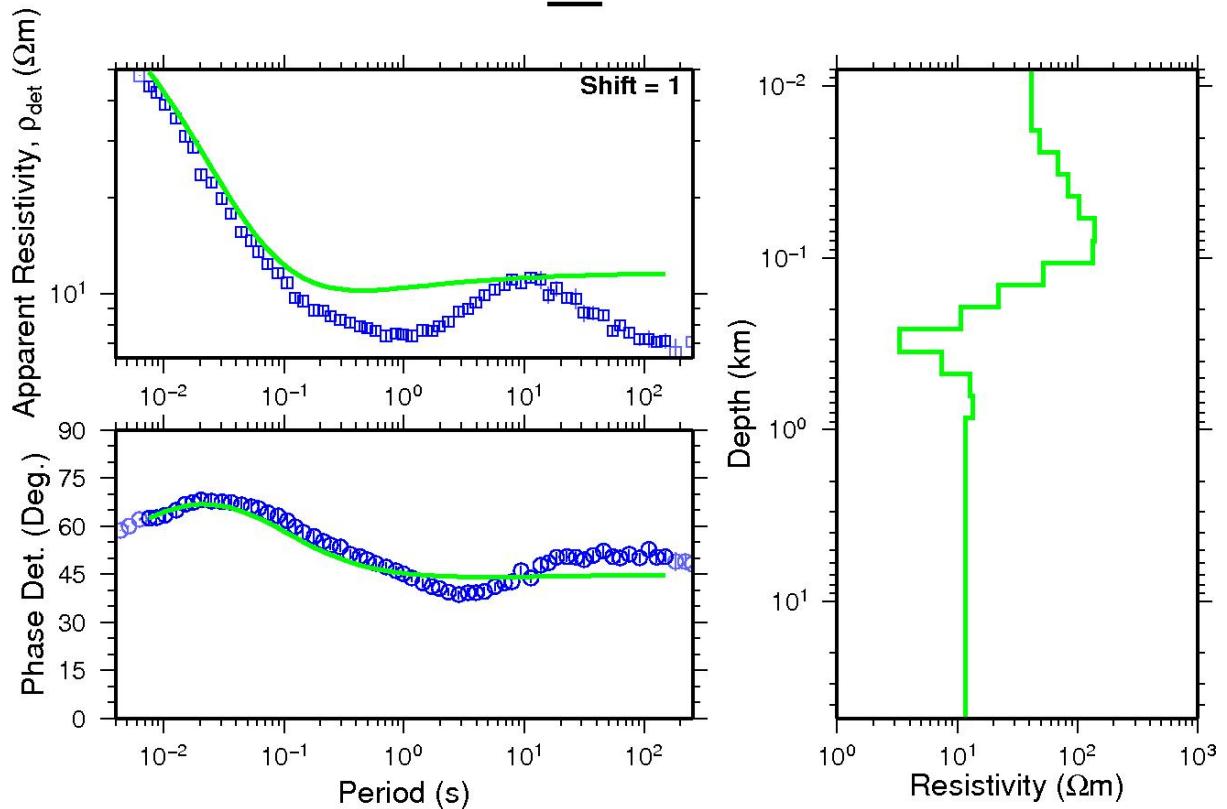


PakMT13_o

$\chi = 2.2063$

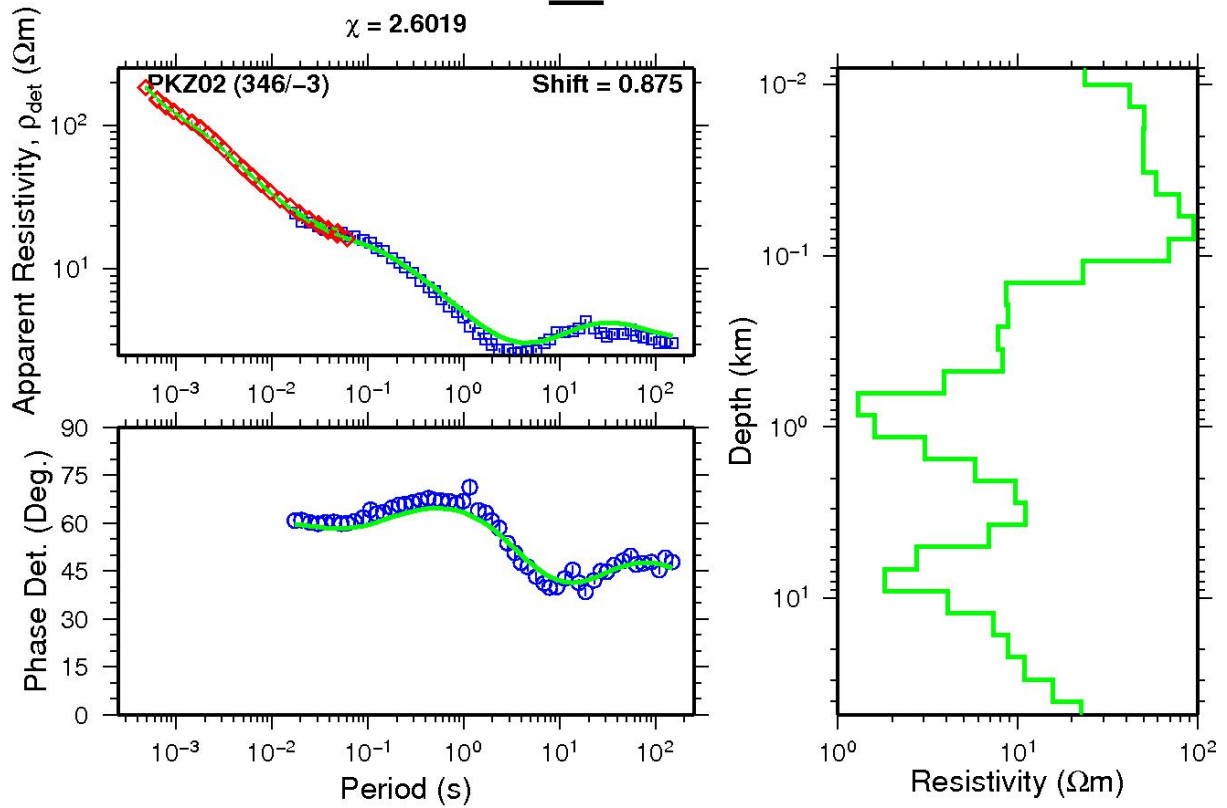


PakMT14_o



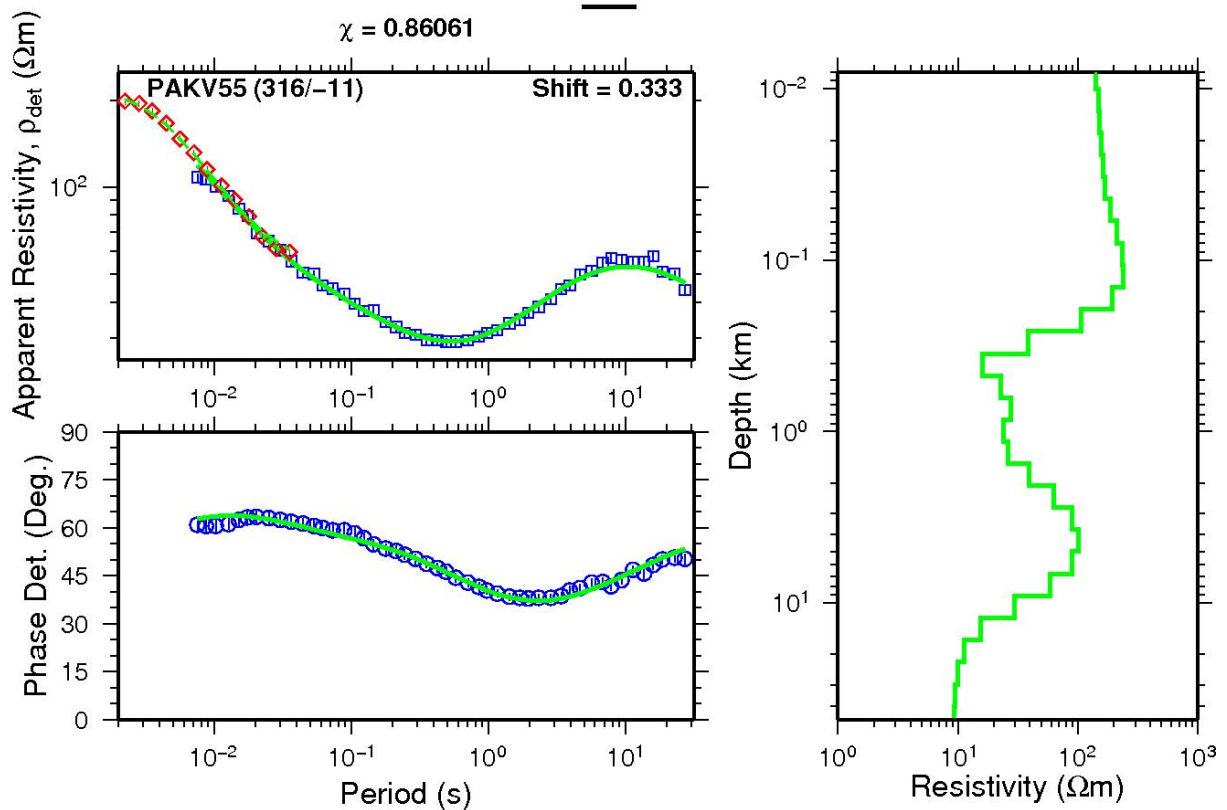
PakMT15_o

$\chi = 2.6019$



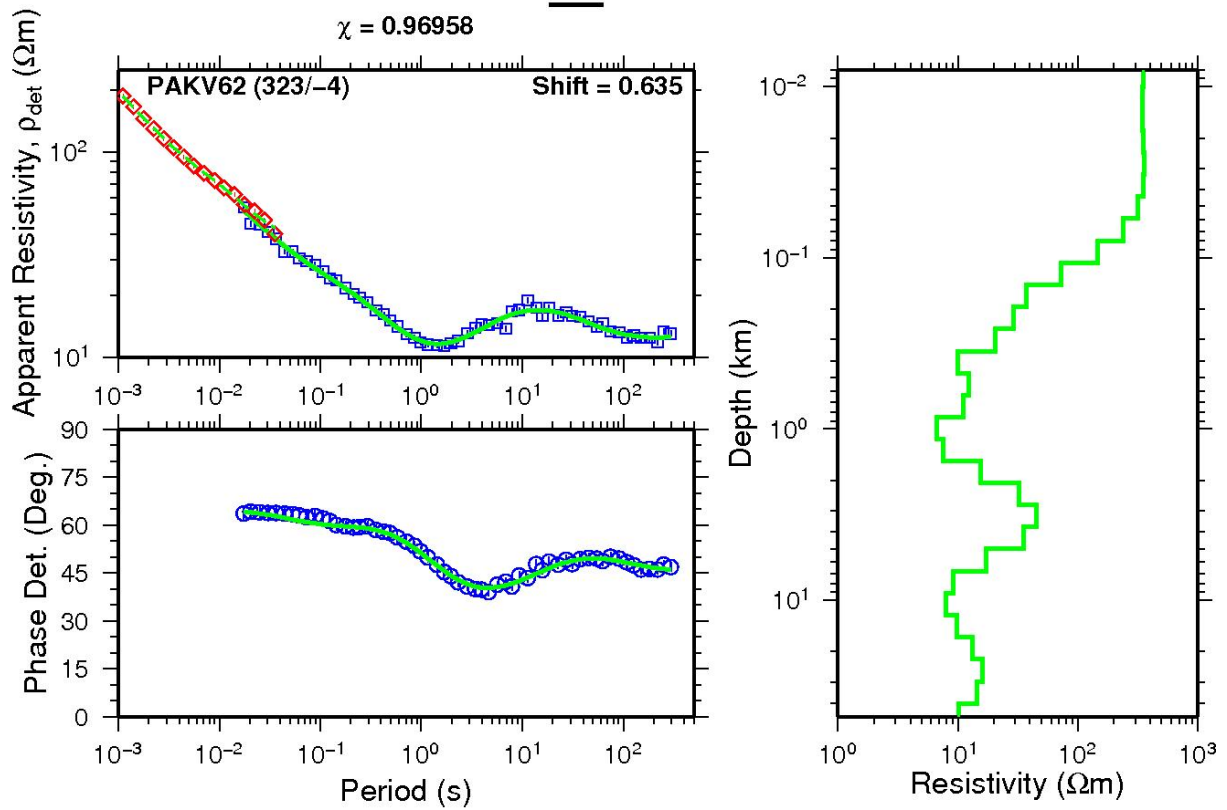
PakMT55R_o

$\chi = 0.86061$



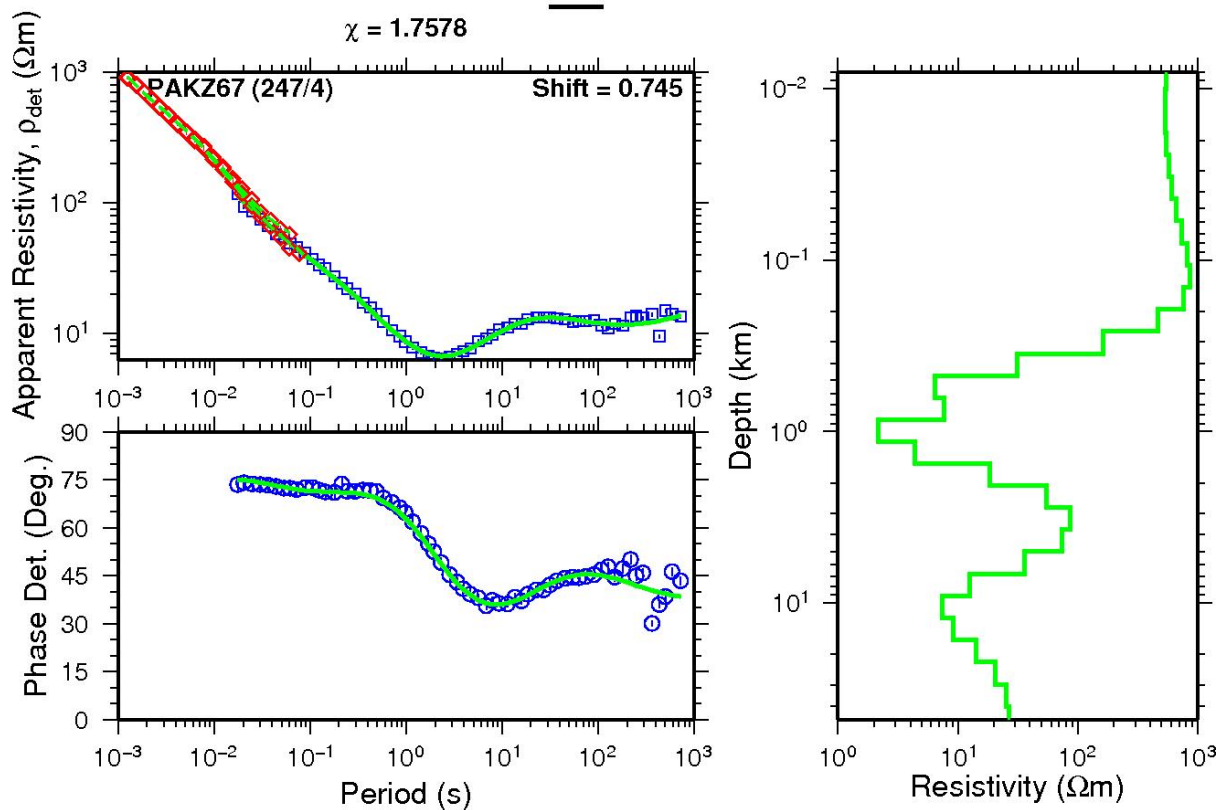
PakMT62_o

$\chi = 0.96958$



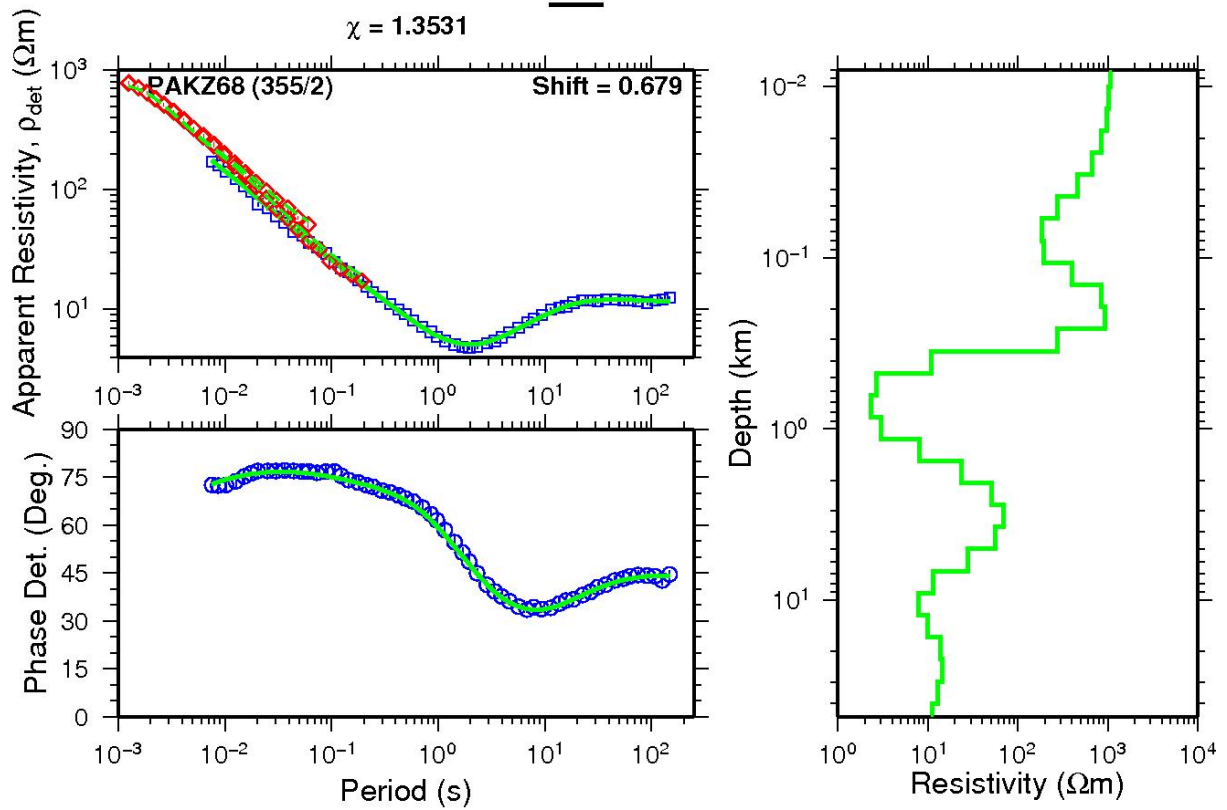
PakMT67_o

$\chi = 1.7578$



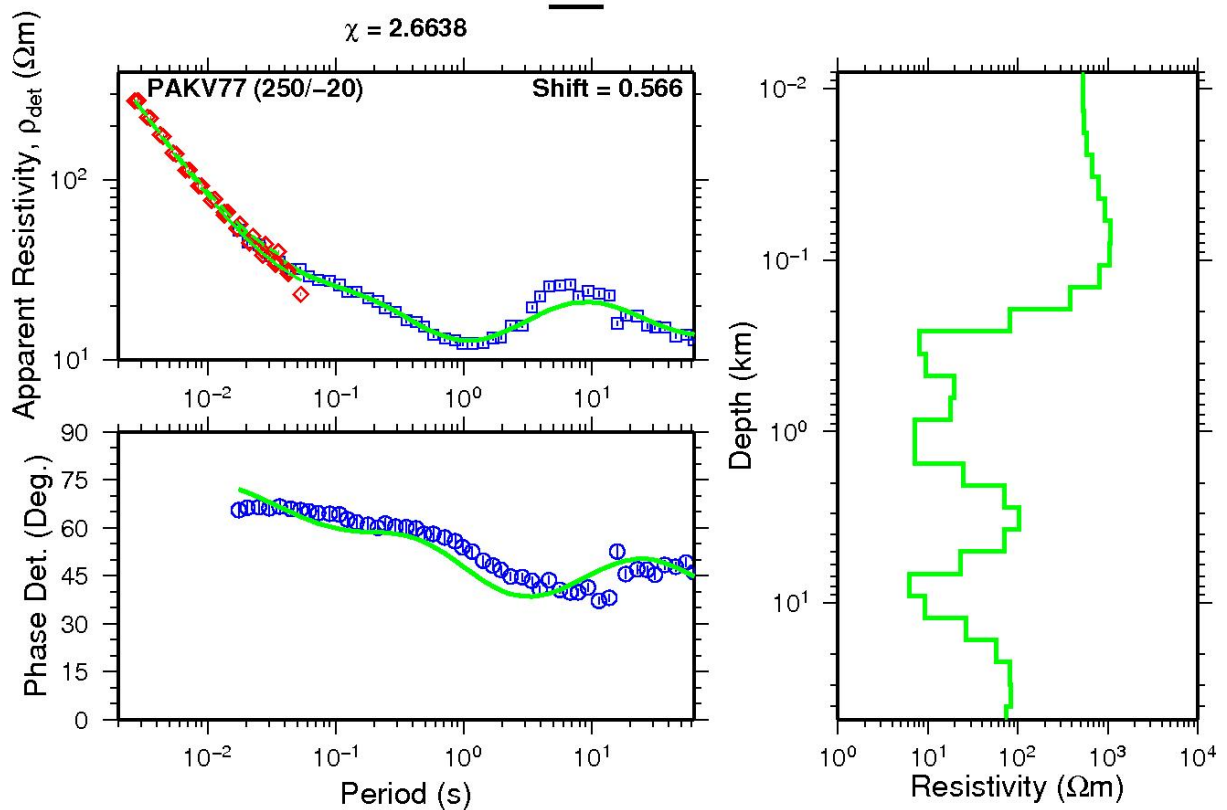
PakMT68_o

$\chi = 1.3531$



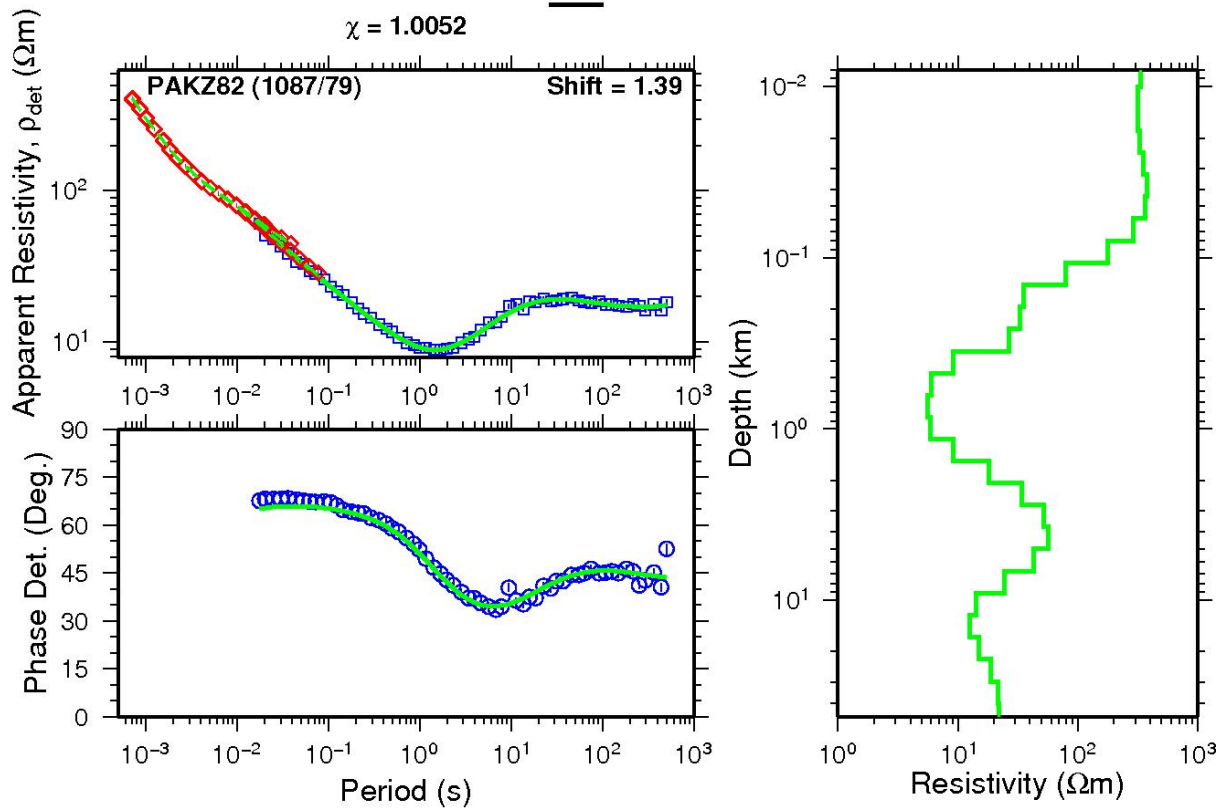
PakMT77_o

$\chi = 2.6638$



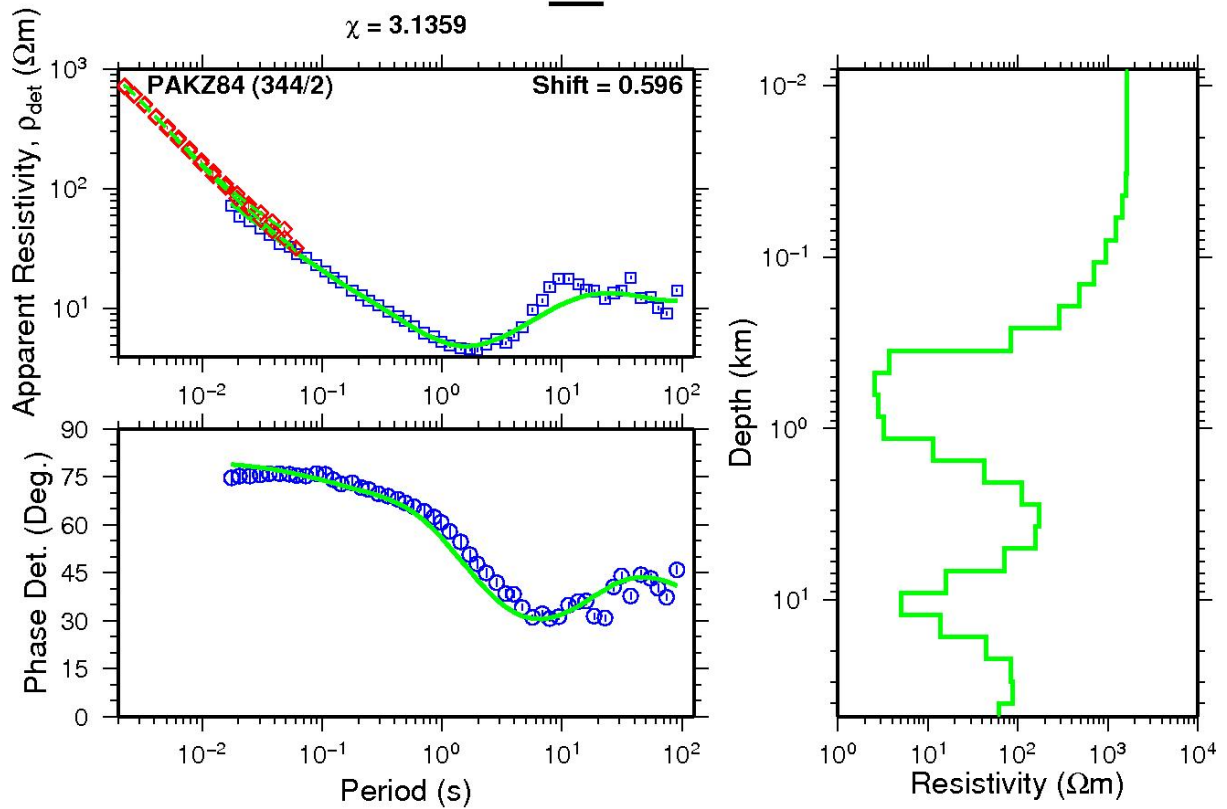
PakMT82_o

$\chi = 1.0052$



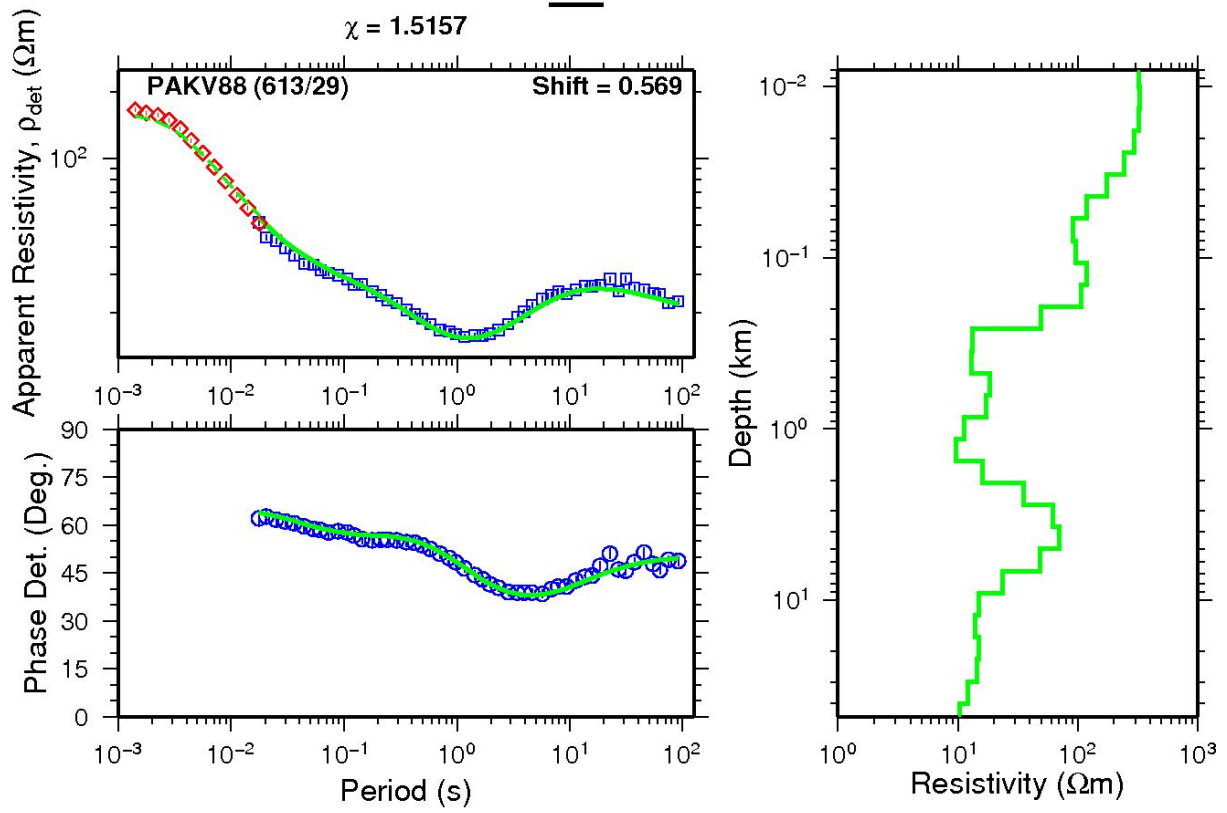
PakMT84_o

$\chi = 3.1359$



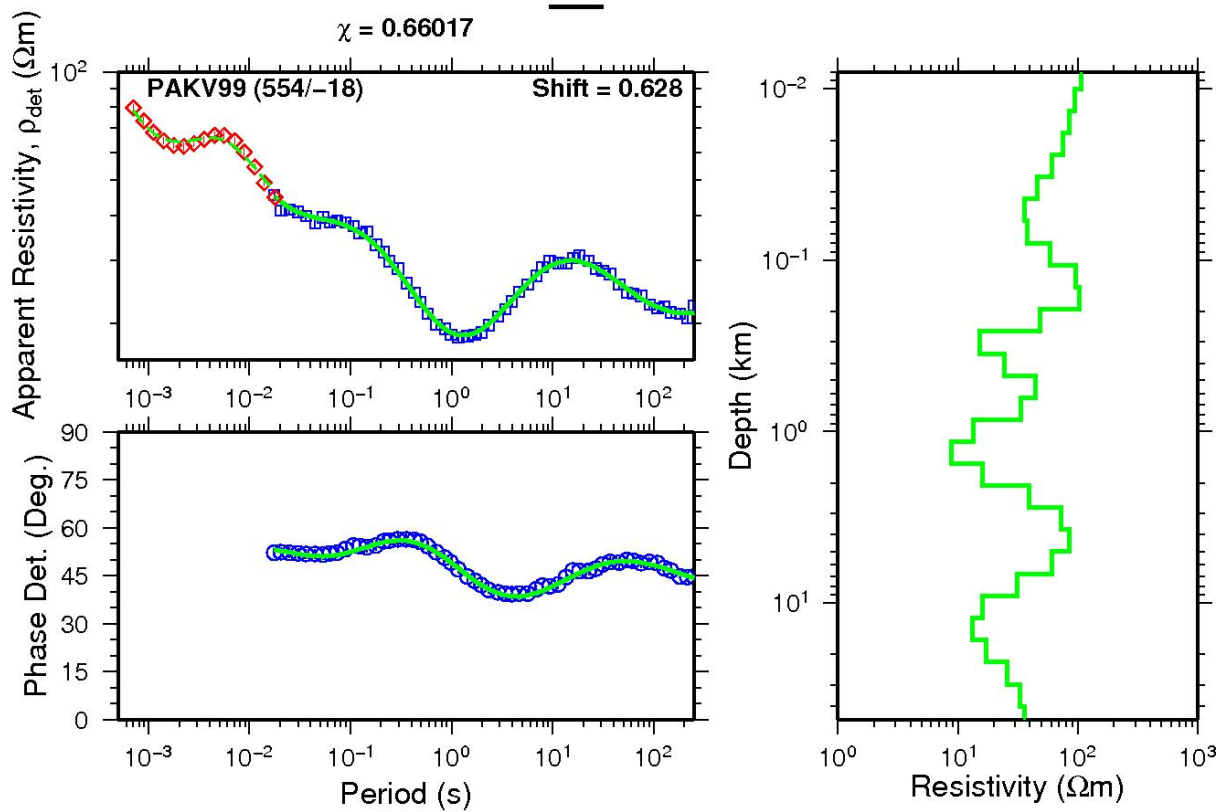
PakMT88_o

$\chi = 1.5157$



PakMT99_o

$\chi = 0.66017$



APPENDIX IV: Additional iso-resistivity maps from the Paka prospect

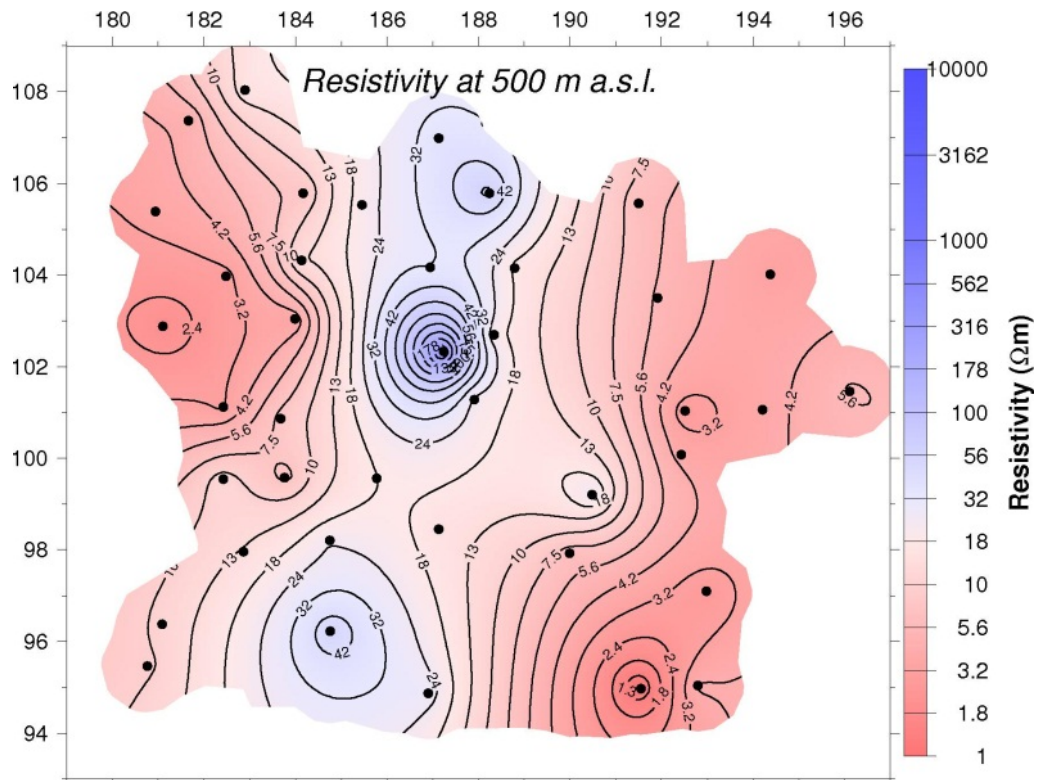


FIGURE 1: Resistivity in the Paka prospect at 500 m a.s.l

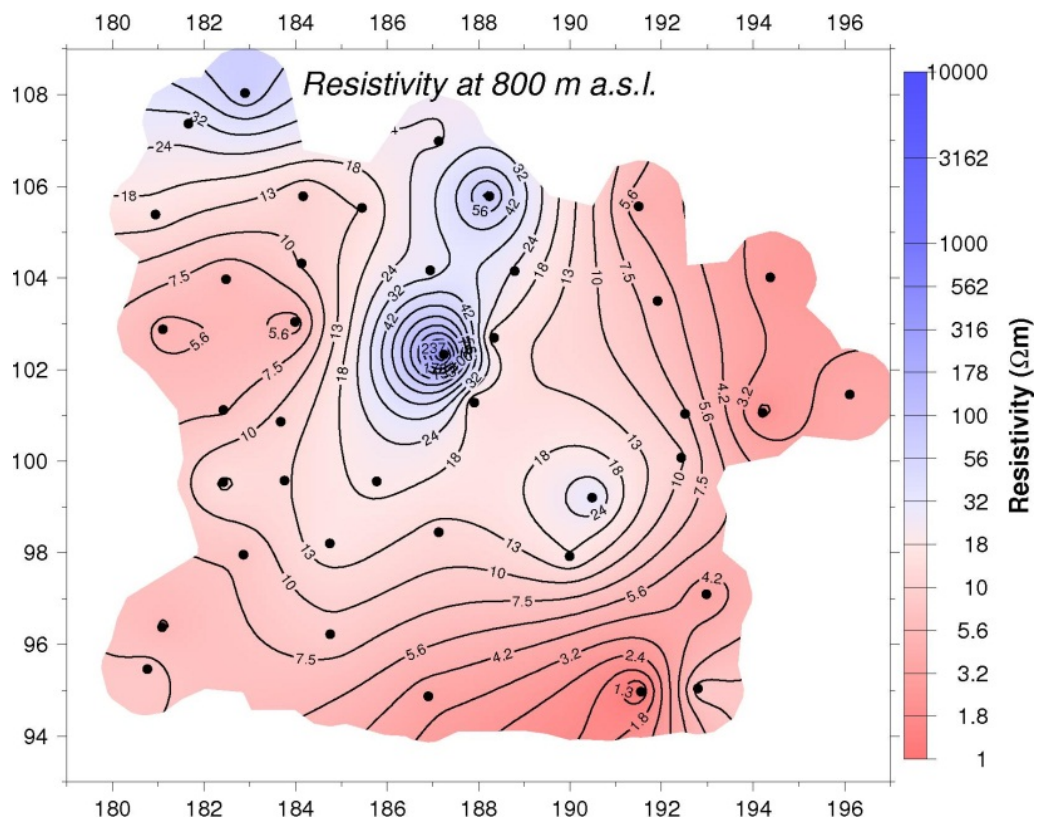


FIGURE 2: Resistivity in the Paka prospect at 800 m a.s.l

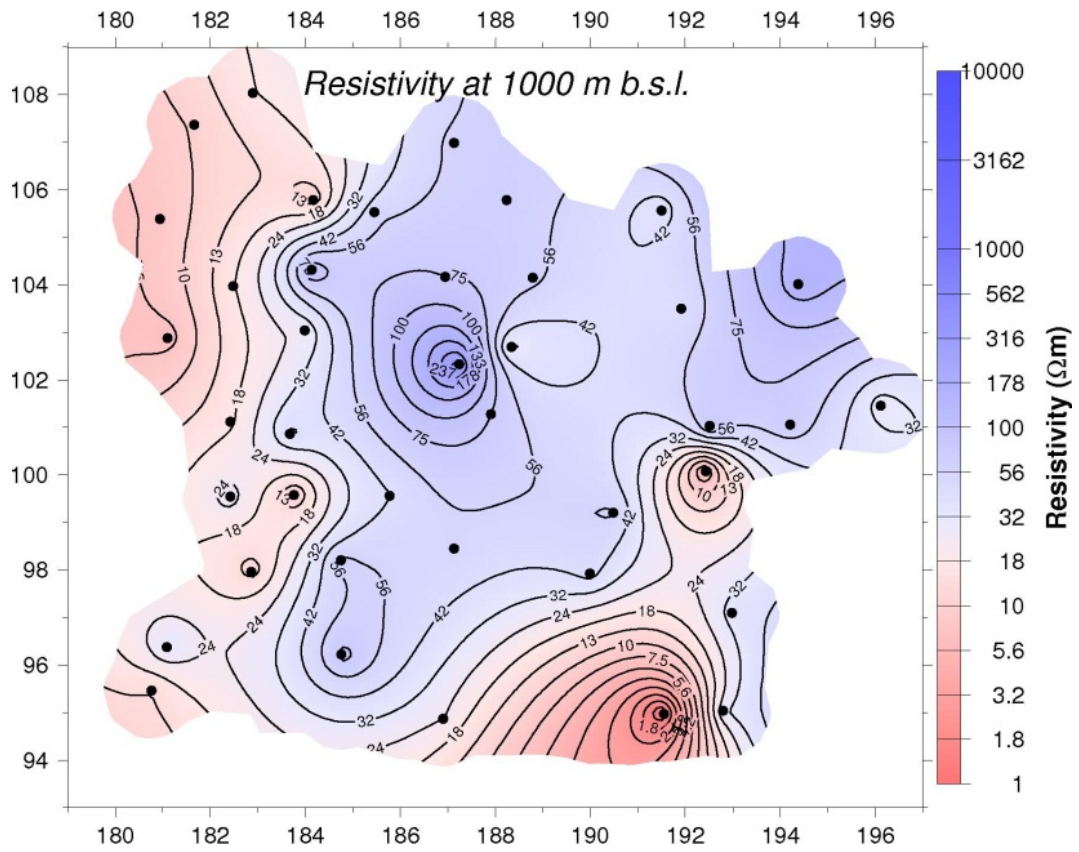


FIGURE 3: Resistivity in the Paka prospect at 1000 m b.s.l

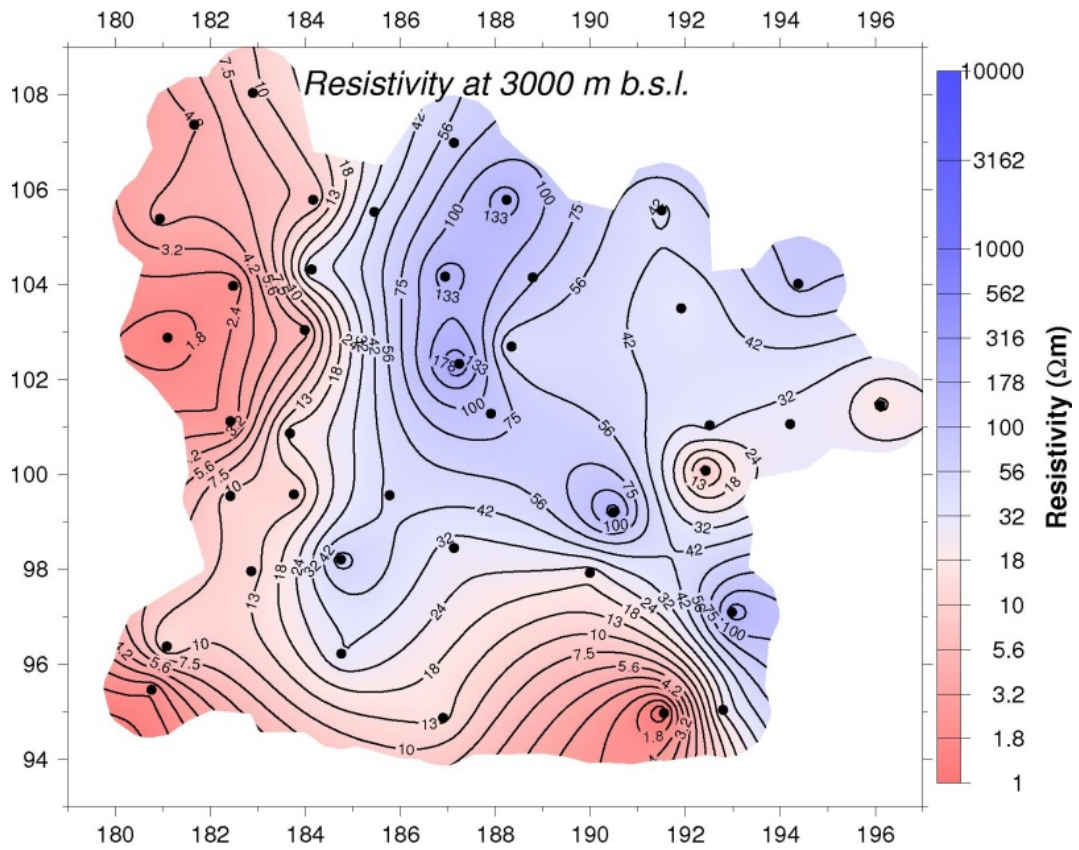


FIGURE 4: Resistivity in the Paka prospect at 3000 m b.s.l

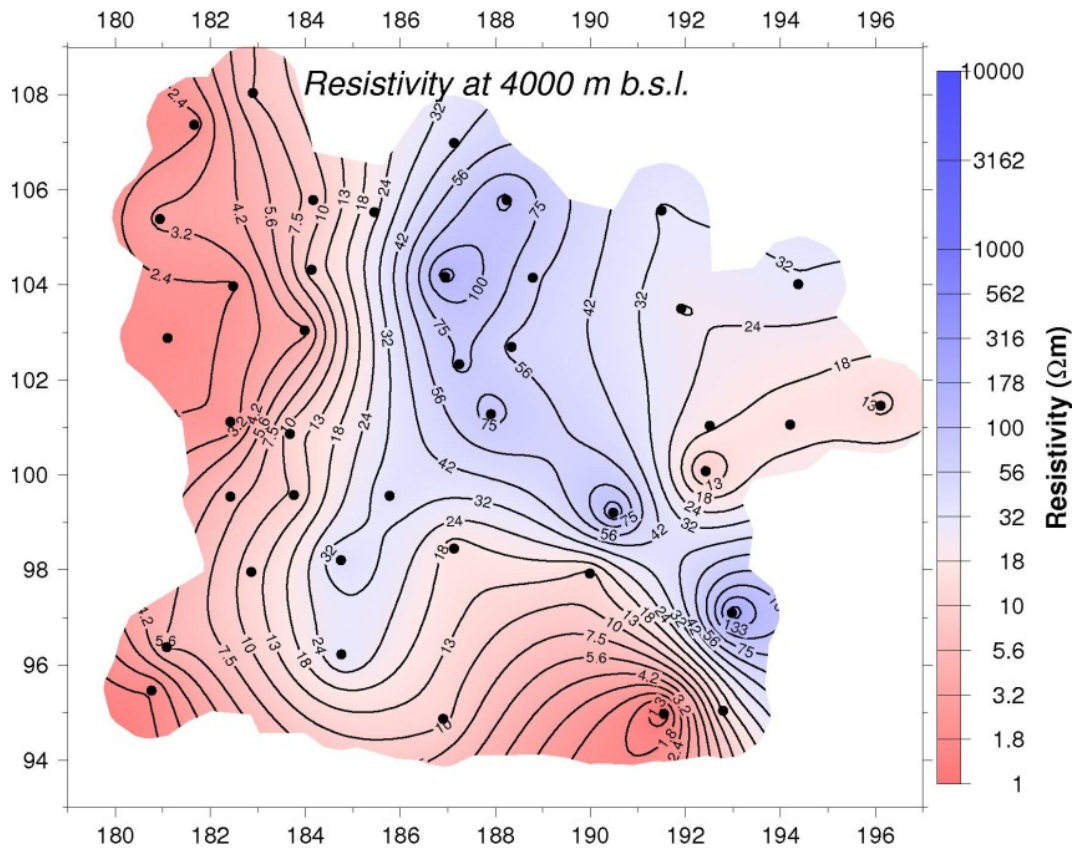


FIGURE 5: Resistivity in the Paka prospect at 4000 m b.s.l

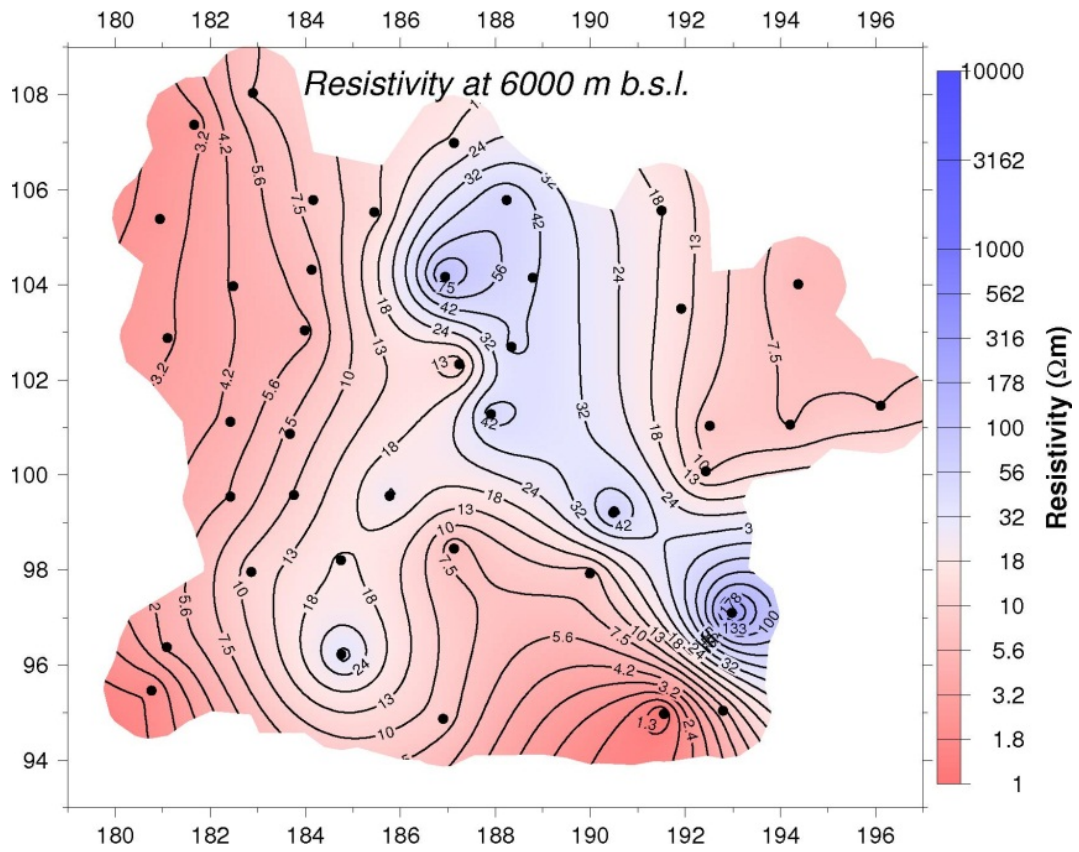


FIGURE 6: Resistivity in the Paka prospect at 6000 m b.s.l

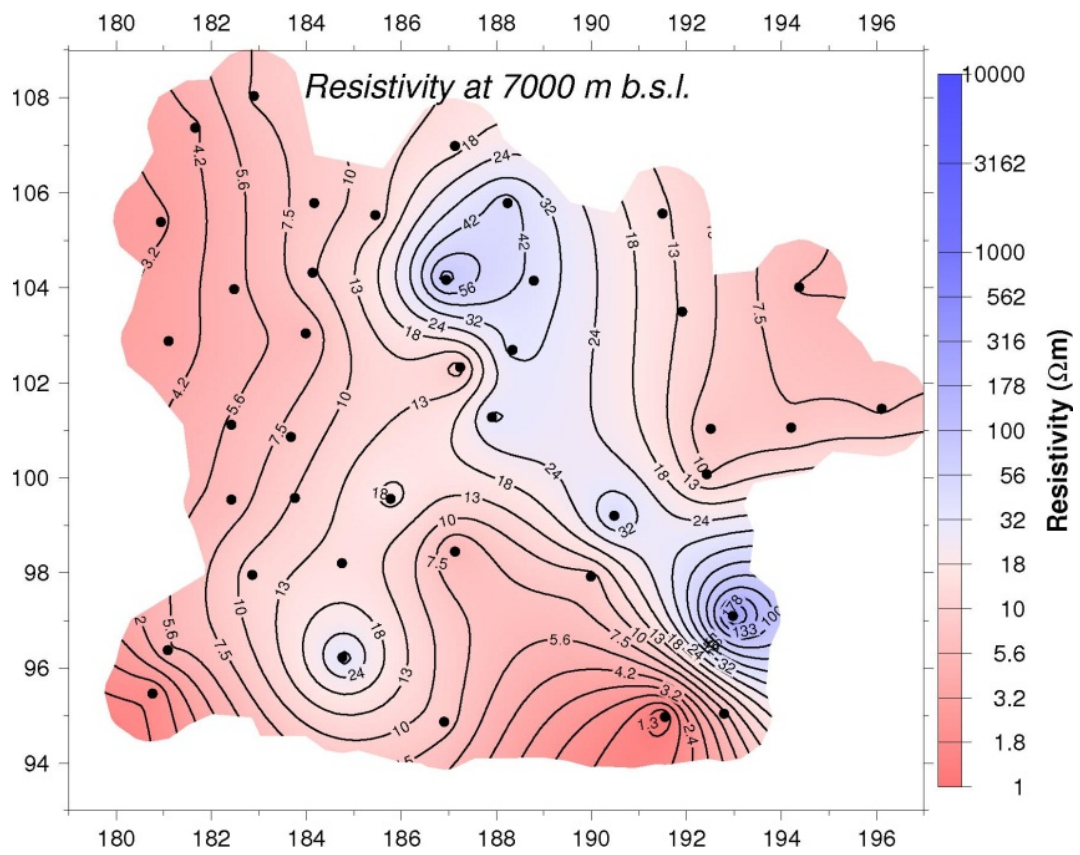


FIGURE 7: Resistivity in the Paka prospect at 7000 m b.s.l

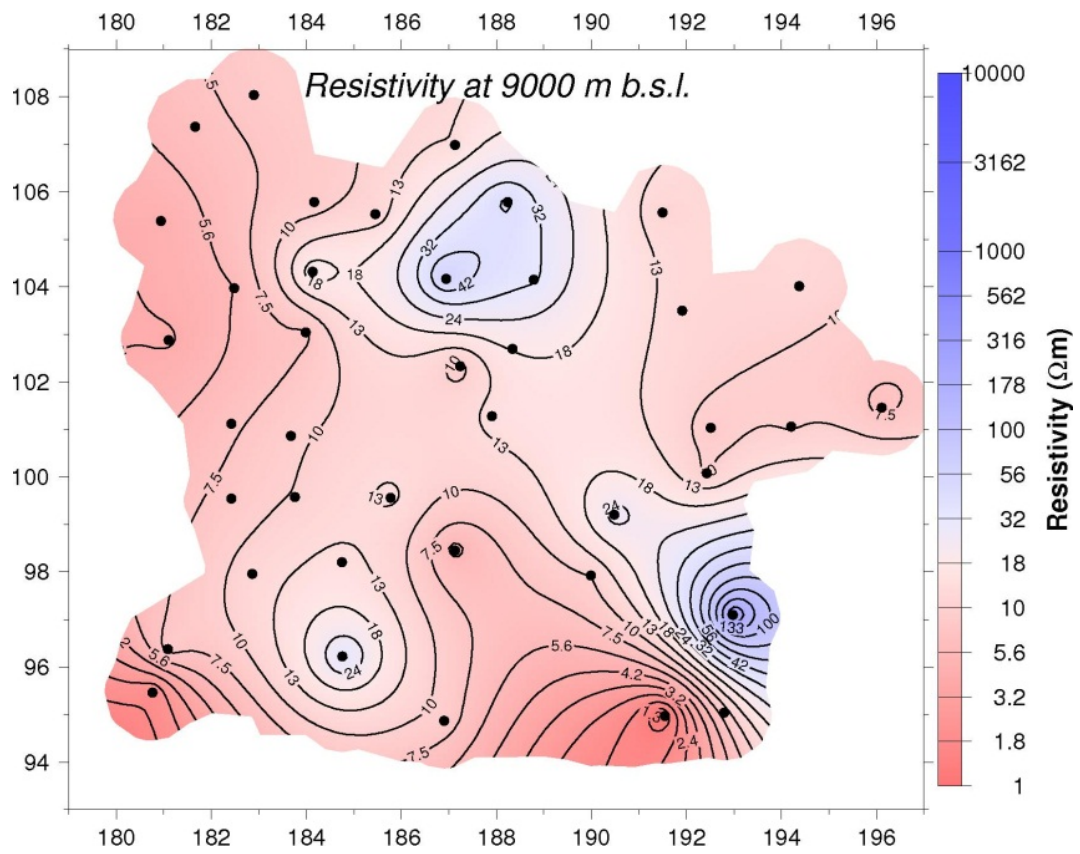


FIGURE 8: Resistivity in the Paka prospect at 9000 m b.s.l

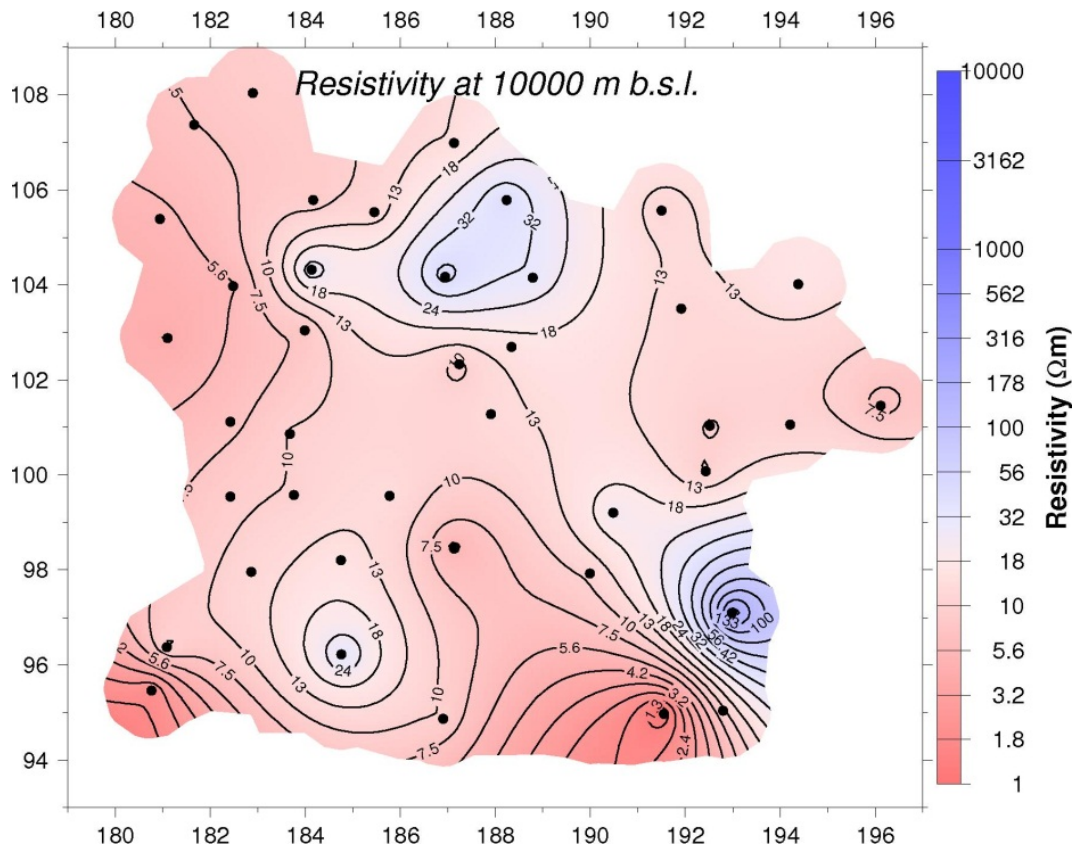


FIGURE 9: Resistivity in the Paka prospect at 10000 m b.s.l

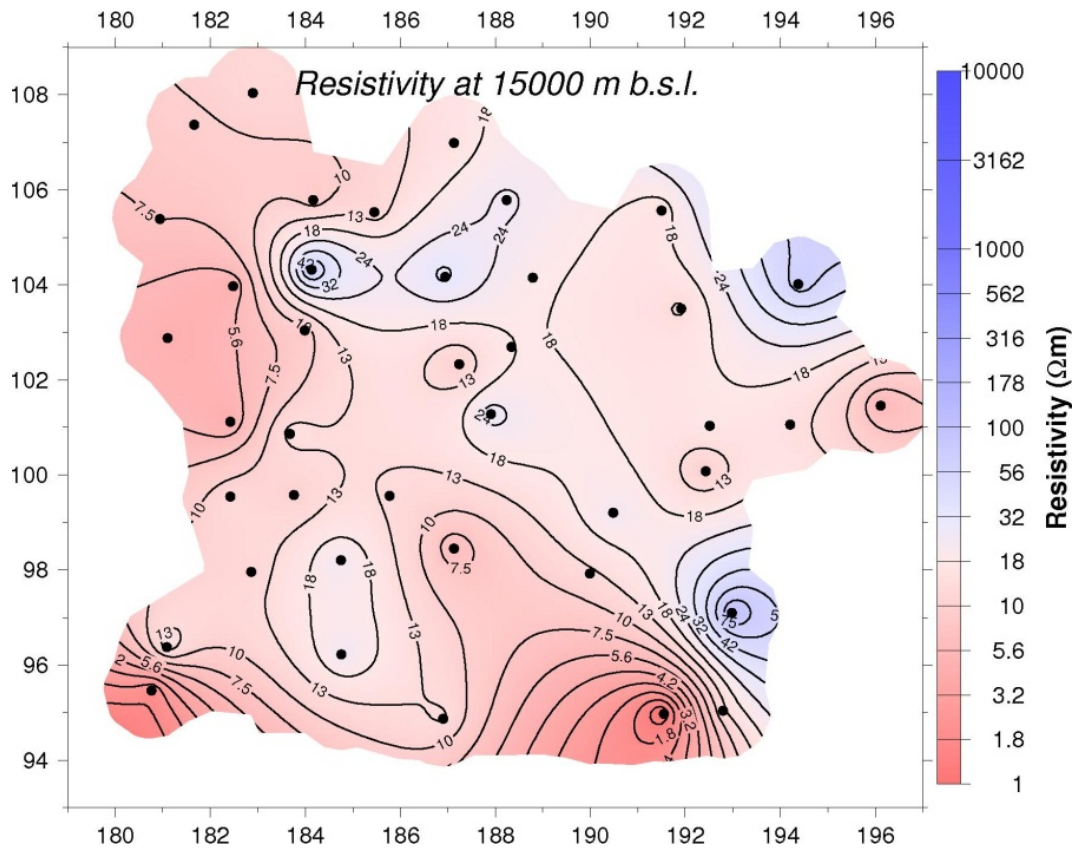


FIGURE 10: Resistivity in the Paka prospect at 15000 m b.s.l

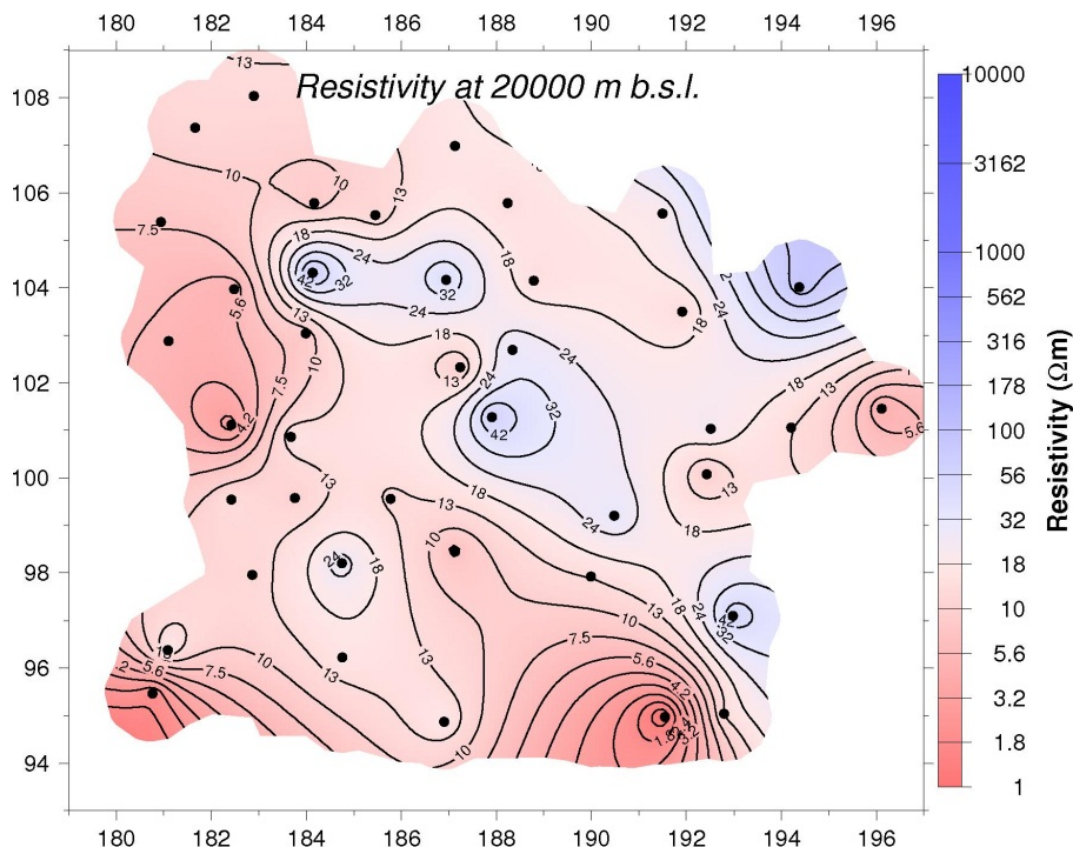


FIGURE 11: Resistivity in the Paka prospect at 20000 m b.s.l

APPENDIX V: Additional resistivity cross-sections from the Paka prospect and their locations

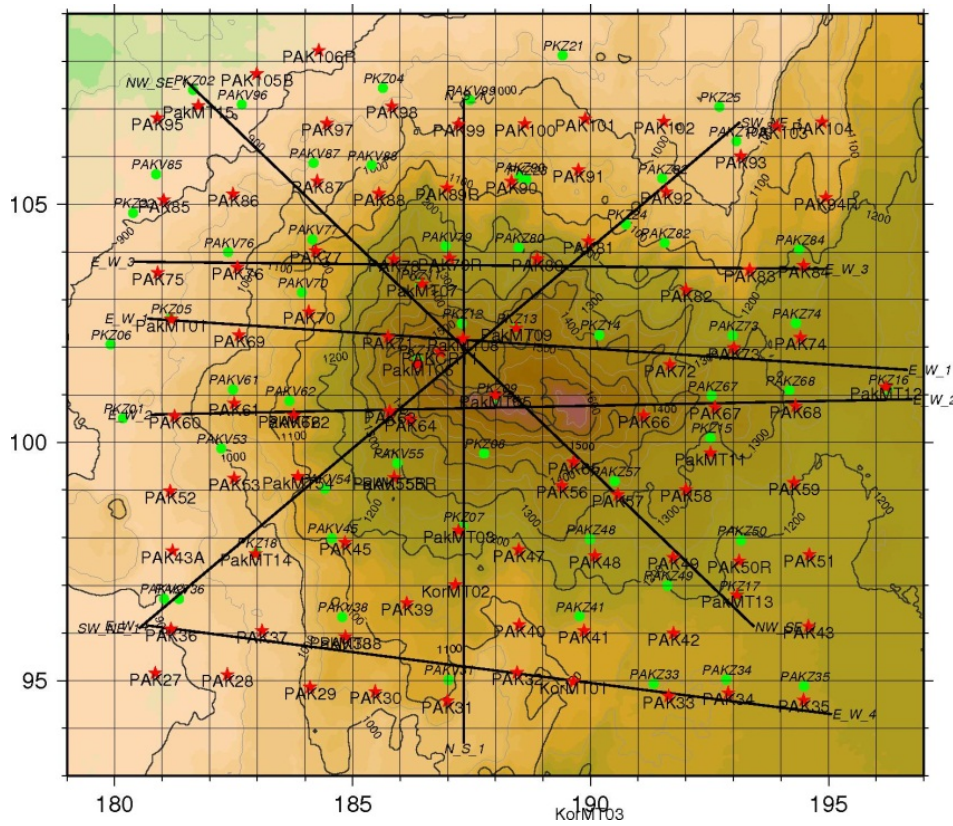


FIGURE 12: Location of TEM soundings (green dots) and MT soundings (red dots) considered in this survey and black lines the location of the cross-sections used in interpreting the resistivity structure of the survey area

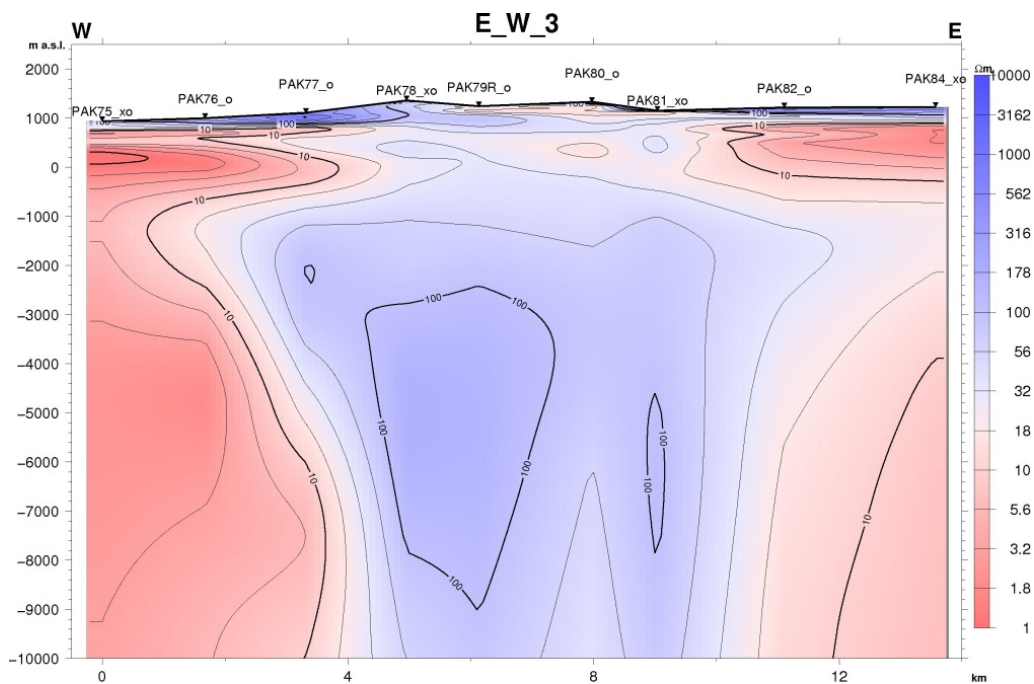


FIGURE 13: Resistivity cross-section E_W_3 in the Paka prospect based on 1D joint inversion of TEM and determinant of MT data

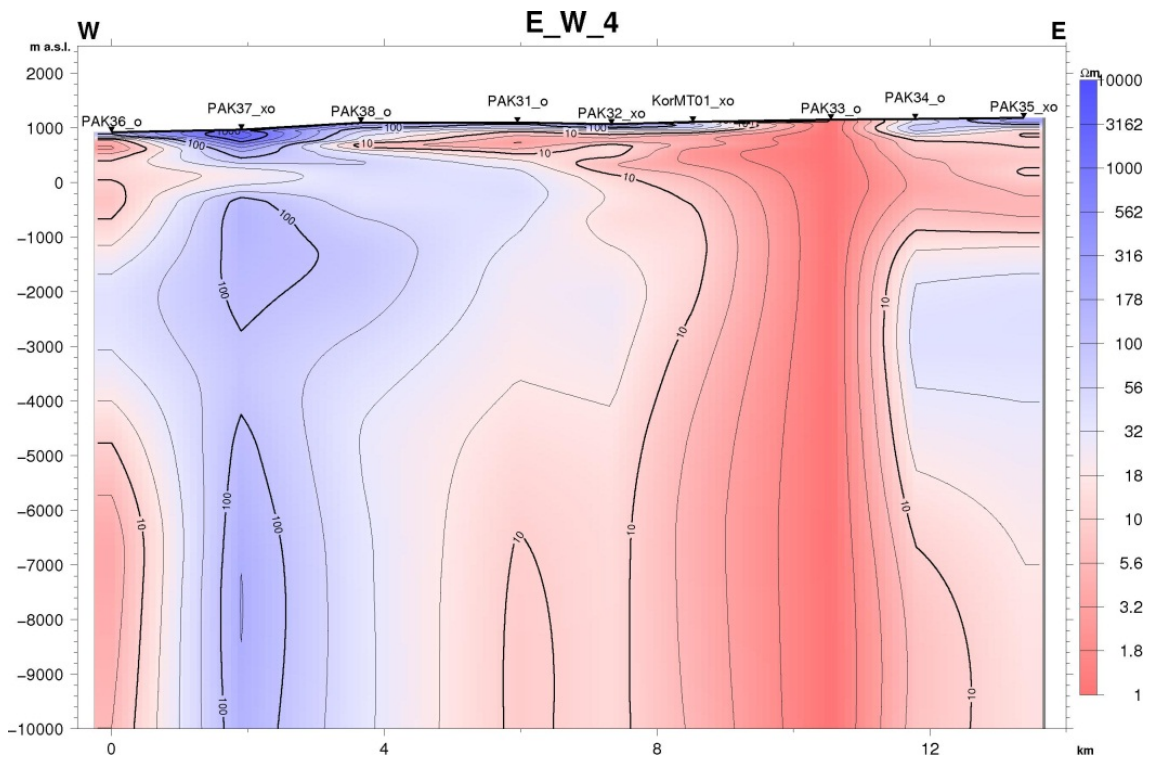


FIGURE 14: Resistivity cross-section *E_W_4* in the Paka prospect based on 1D joint inversion of TEM and determinant of MT data

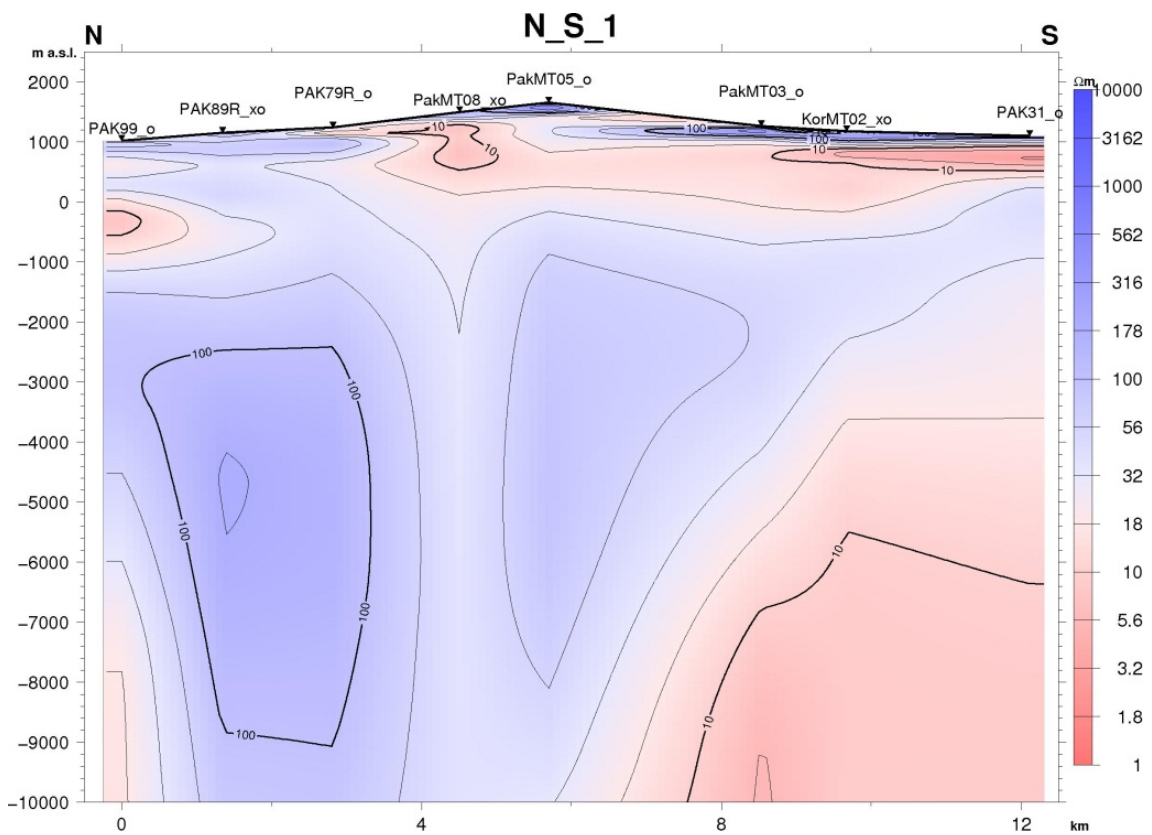


FIGURE 15: Resistivity cross-section *N_S_1* in the Paka prospect based on 1D joint inversion of TEM and determinant of MT data