Preliminary results of the two seismic sequences in the Vienna Basin in March and April 2021

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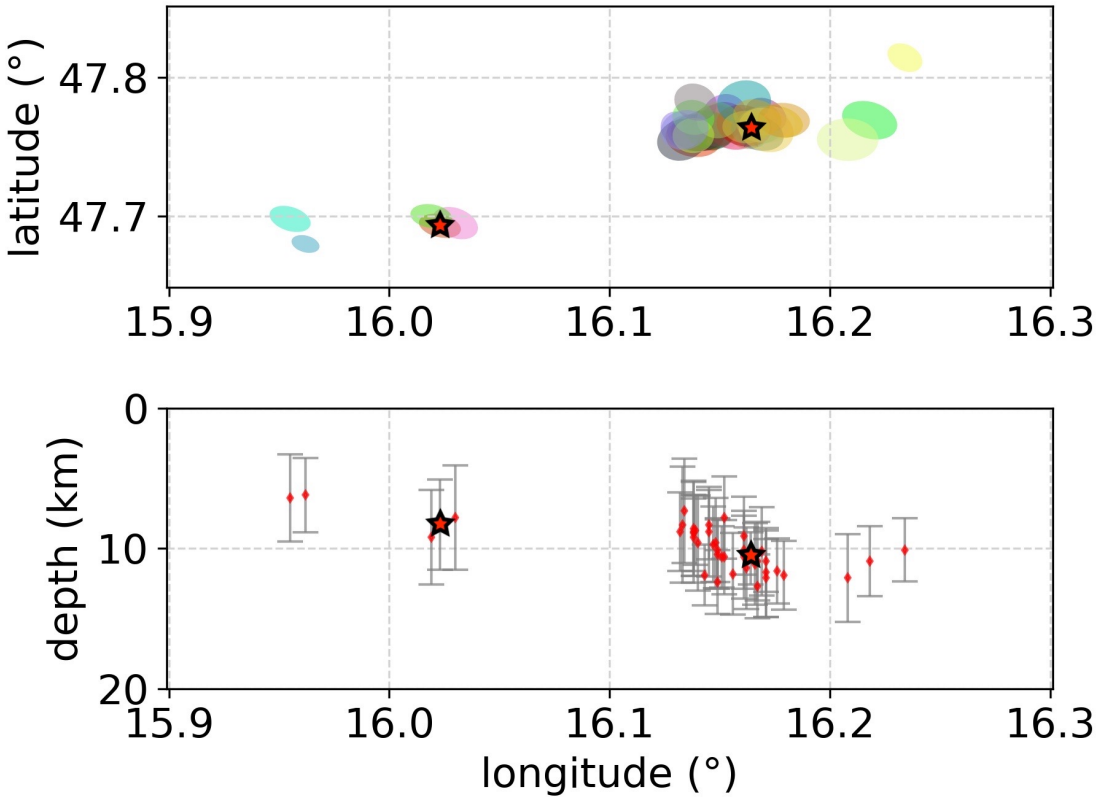
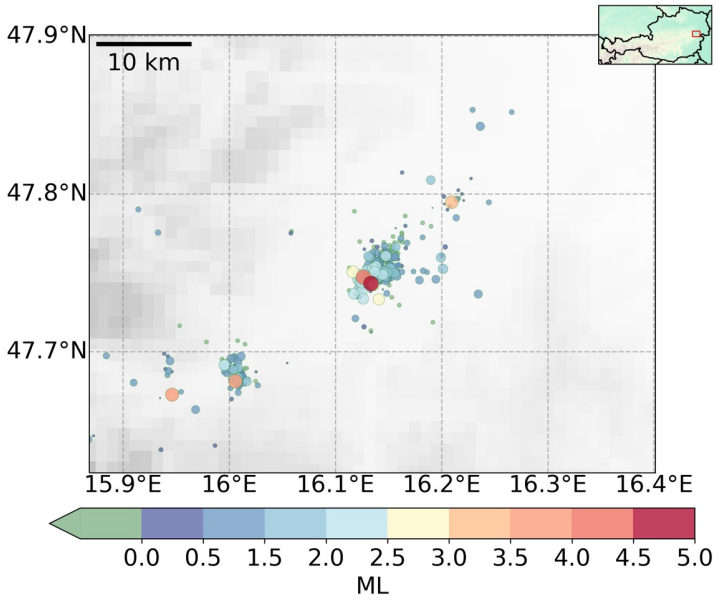
1. Series relocatio with NLLoc

Both series: Earthquakes which fulfil GT5 (43 EQ)





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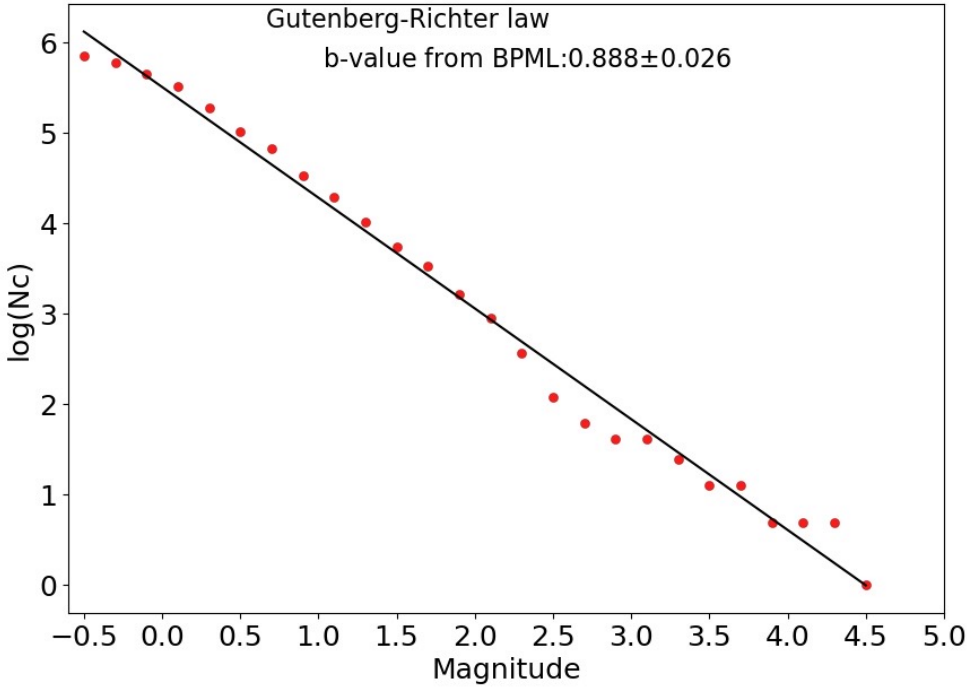
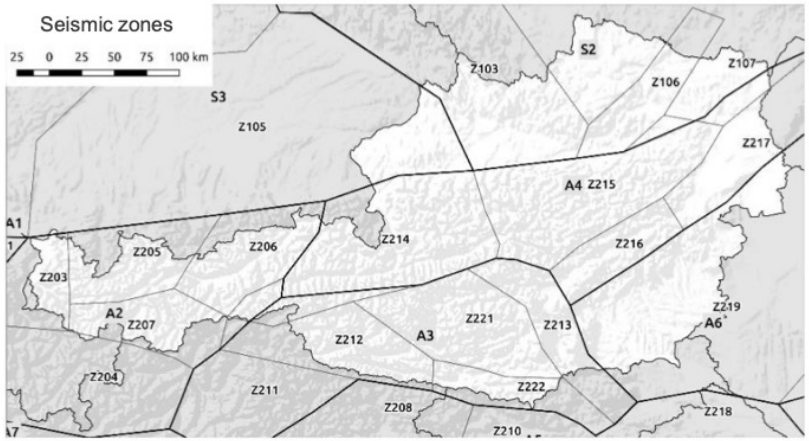
2. b-value of the study area

Both serie Gutenberg-Richter – 0.1 magnitude step



	b	M_{Max}	$v(M_{Min})$
S2	1.07	6.0	0.01
S3	0.89	6.1	0.05
A2	1.15	6.1	0.61
A3	1.04	6.5	0.29
A4	1.03	6.4	0.51
A6	0.85	6.3	0.06



Weginger, S., Isaba María del Puy, P., Jia, Y., & Lenhardt, W. (2020, May). Seismic hazard map of Austria. In EGU General Assembly Conference Abstracts (p. 4820).

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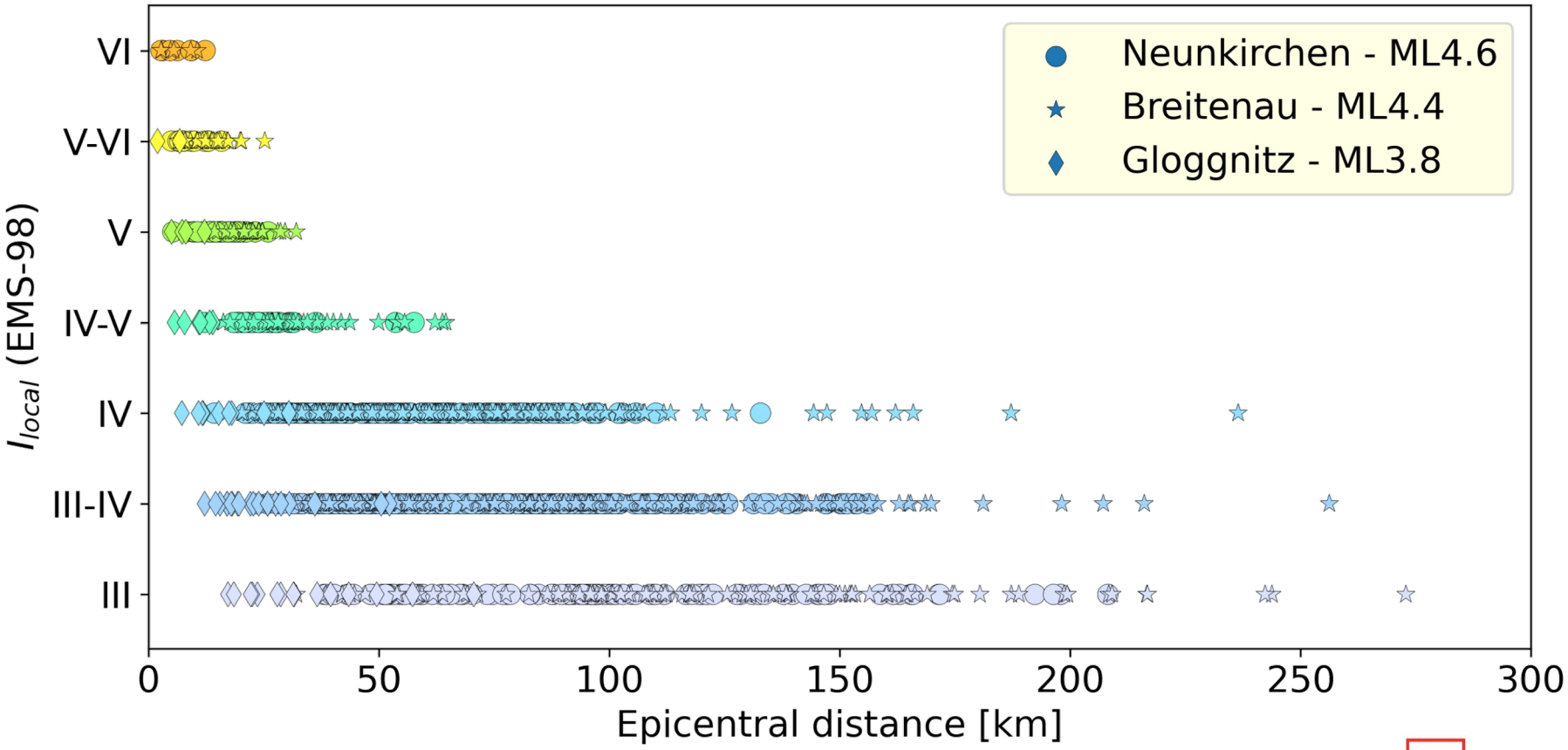
3. Intensity Prediction Equation (IPE)

Intensity Data Points of the three strongest earthquakes Vs. the epicentral distance



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3. Intensity Prediction Equation (IPE)

IPE with strongest earthquakes (ML4.6, ML4.4, ML3.8, ML3.5, ML3.3)

Adjustment 1: Epicentral intensity model:

$$I_0 = k_0 + k_1 M_L + k_2 \ln(z)$$

I_0 Epicentral intensity
M_L Local magnitude
z Focal depth [km]

Adjustment 2: Attenuation model

$$I_{local} - I_0^{model} = I_{diff} = k_3 \cdot \ln(D)$$

D Epicentral distance

$$k_0 = 3.742$$
$$k_1 = 1.265$$
$$k_2 = -1.463$$

$$k_3 = -0.547$$

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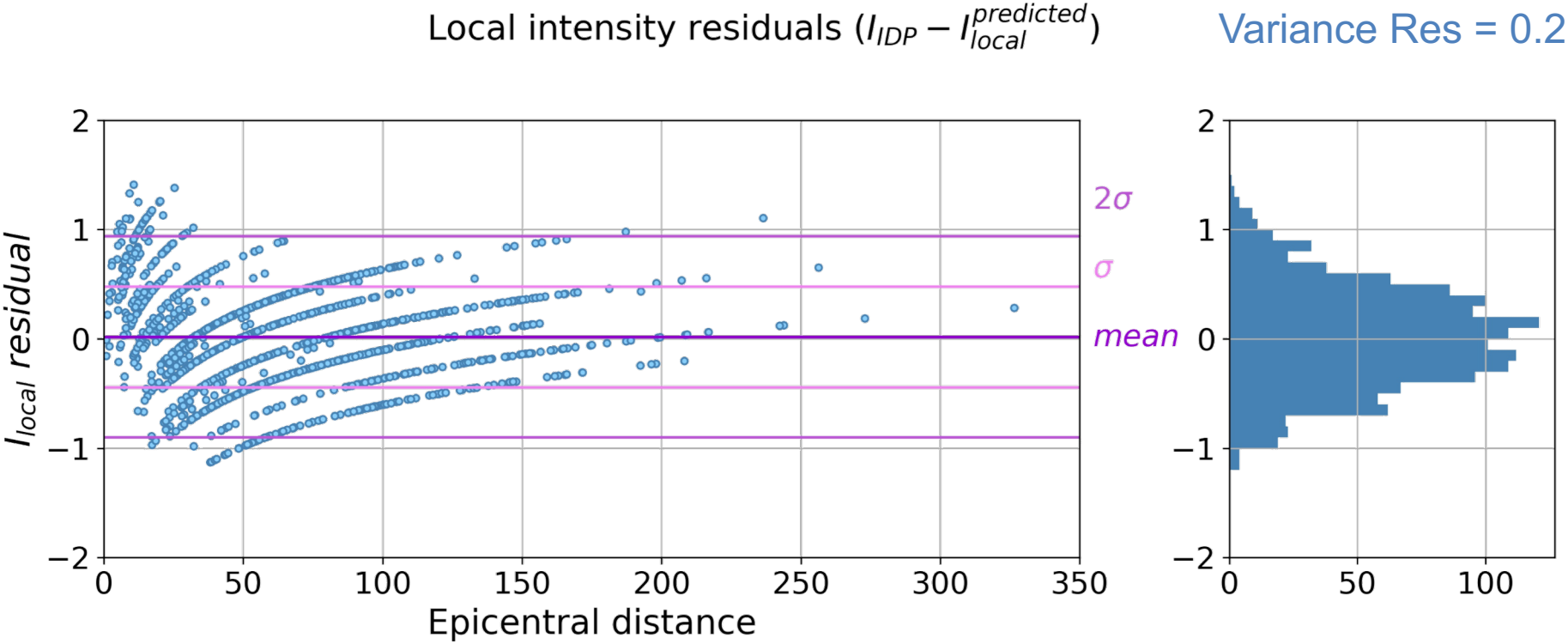
3. Intensity Prediction Equation (IPE)

IPE with strongest earthquakes – Ilocal residuals

Mean Res = -0.1
Std Res = 0.5
Variance Res = 0.2



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