

Topic	Recommended minimal distances of seismic sites from sources of seismic noise
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Recommended minimal distances from sources of seismic noise to a seismic site (according to Willmore, 1979) are:

STATION SITE NAME: _____ _____		SITE #: _____			DATE OF ANALYSIS: ___/___/___			ACTUAL DISTANCE
COORDINATES: N ⁰ ' " _____" W ⁰ ' " _____"		HARD MASSIVE ROCK, GRANITE, QUARTZITE, ETC.			HARDPAN HARD CLAY, ETC.			
		RECOMMENDED MINIMAL DISTANCES [km]						
		A	B	C	A	B	C	[km]
1. Oceans, with coastal mountains system		300	50	1	300	50	1	
2. Oceans, with broad coastal plains		1000	200	10	1000	200	20	
3. Inland seas, bays, very large lakes, with coastal mountain system		150	25	1	150	25	1	
4. Inland seas, bays, very large lakes, with broad coastal plains		500	100	5	500	100	5	
5. Large dams, high waterfalls, large cataracts		a	40	10	1	50	15	5
		b	60	15	5	150	25	10
6. Large oil or gas pipelines		a	20	10	5	30	15	5
		b	100	30	10	100	30	10
7. Small lakes		a	20	10	1	20	10	1
		b	50	15	1	50	15	1
8. Heavy reciprocating machinery, machinery		a	15	3	1	20	5	2
		b	25	5	2	40	15	3
9. Low waterfalls, rapids of a large river, intermittent flow over large dams		a	5	2	0.5	15	5	1
		b	15	3	1	25	8	2
10. Railway, frequent operation		a	6	3	1	10	5	1
		b	15	5	1	20	10	1
11. Airport, air ways heavy traffic			6	3	1	6	3	1
12. Non-reciprocating power plant machinery, balanced industrial machinery		a	2	0.5	0.1	10	4	1
		b	4	1	0.2	15	6	1
13. Busy highway, mechanized farms			1	0.3	0.1	6	1	0.5
14. Country roads, high buildings			0.3	0.2	0.05	2	1	0.5
15. Low buildings, high trees and masts			0.1	0.03	0.01	0.3	0.1	0.05
16. High fences, low trees, high bushes, large rocks			0.05	0.03	5 m	0.06	0.03	0.01

LEGEND:

- A SP seismic station with a gain of about 200,000 or more at 1 Hz
- B SP seismic station with a gain from 50,000 to 150,000 at 1 Hz
- C SP seismic station with a gain of approximately 25,000 or less at 1 Hz
- a Source and seismometer on widely different geological formations or that mountain ranges or valleys intervene
- b Source and seismometer on the same geological formation and with no intervening alluvial valley or mountain range

Instructions for use of the form:

1. Get the information about all potential sources of seismic noise around the site and write the distances to them in the extreme right column of the table.
2. From geological maps and by visiting the site decide on the quality of the bedrock at the site. Decide either for 'good' rock (left three columns A, B, and C with minimal recommended distances) or for 'less suitable' ground (right three columns A, B, and C with the minimal recommended distances).
3. For each seismic noise source (where applicable) decide about seismic coupling between seismic site and the noise source. Select the appropriate horizontal line a) or b) with minimal recommended distance.
4. Mark appropriate cells in the table based on the steps #2 and #3 and compare their content with the actual distances in the extreme right column.
5. Shade all cells of the selected A, B, and C columns where the recommended minimal distances to a noise source is bigger than the actual distance in the extreme right column. Find that of the columns A, B, or C where no shaded cells appear. If this is the column A, the site is appropriate for a sensitive SP station having gain 200,000 or more, if this is column B the site is appropriate for a medium sensitive station having the gain somewhere in between 50.000 and 150.000, if it is column C, only a moderately sensitive station with gain around 25.000 or less can be established.
6. Make such a table for all potential seismic sites studied and compare the results among alternatives.