

Aardgas en aardbevingen

Groningenveld

5.1.2e

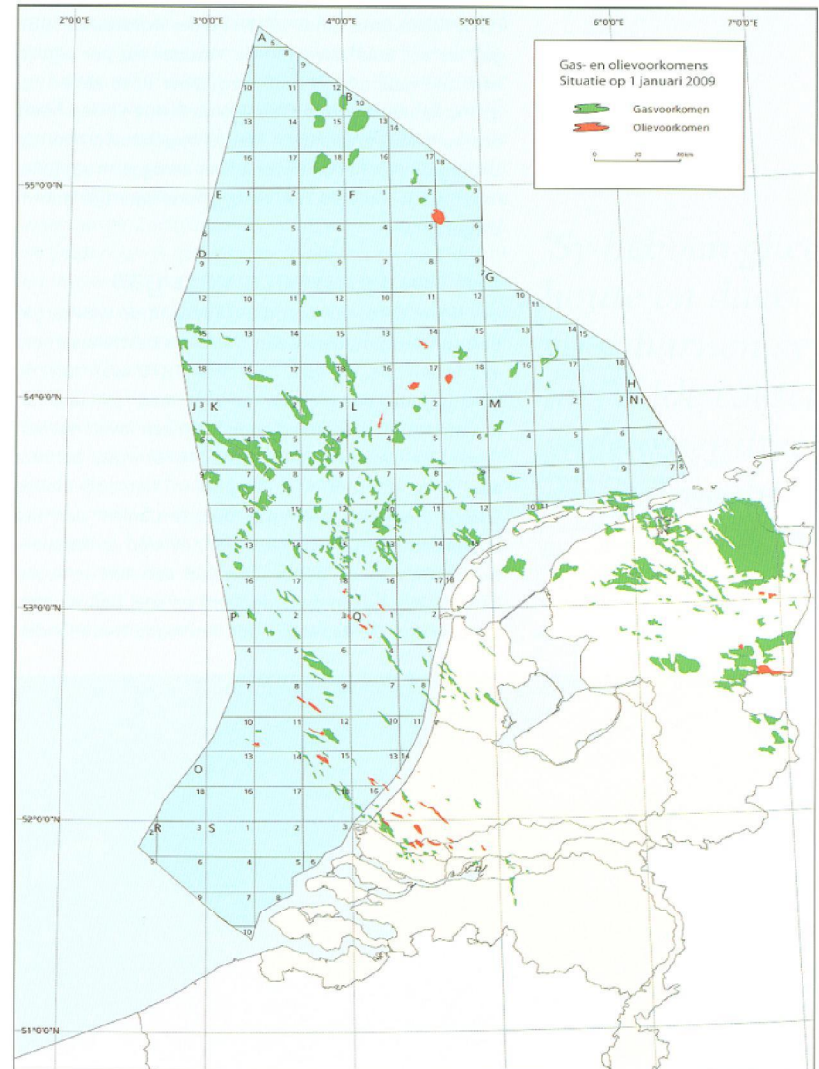
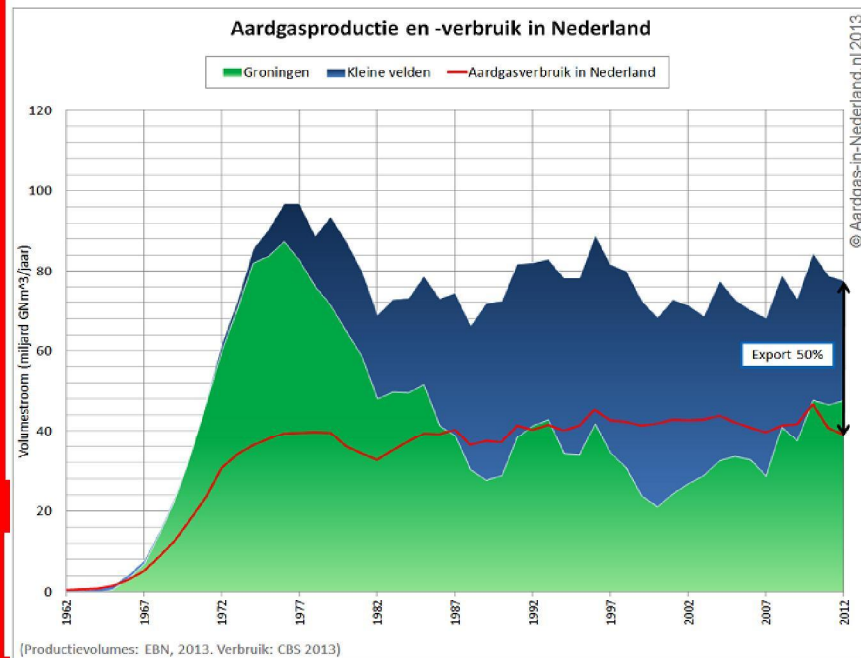
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Inhoud

- Aardgas en Groningenveld
- De ondergrond
- De bevingen

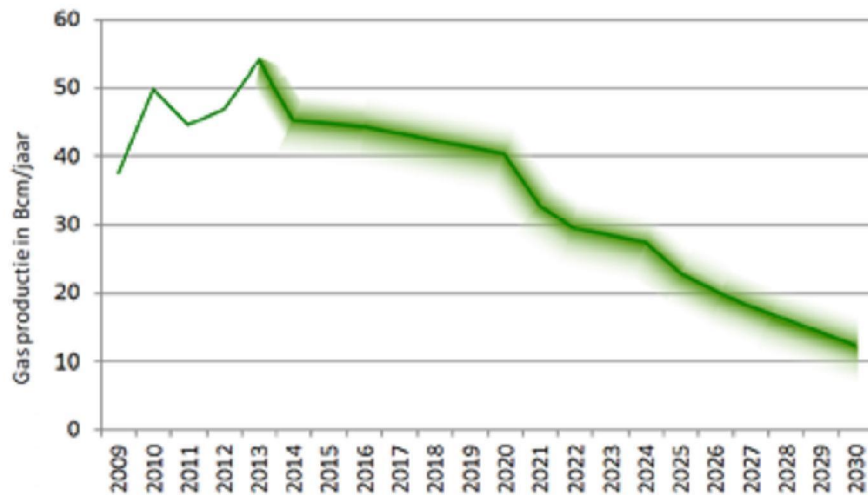
belang aardgas

- 42% van al onze energie.
- 60% van onze elektriciteit.
- 5-10% staatsinkomsten.
- Top 10 gasproducenten.
- 40 miljard m³ eigen gebruik
- 50 miljard m³ export



Groningen gasveld

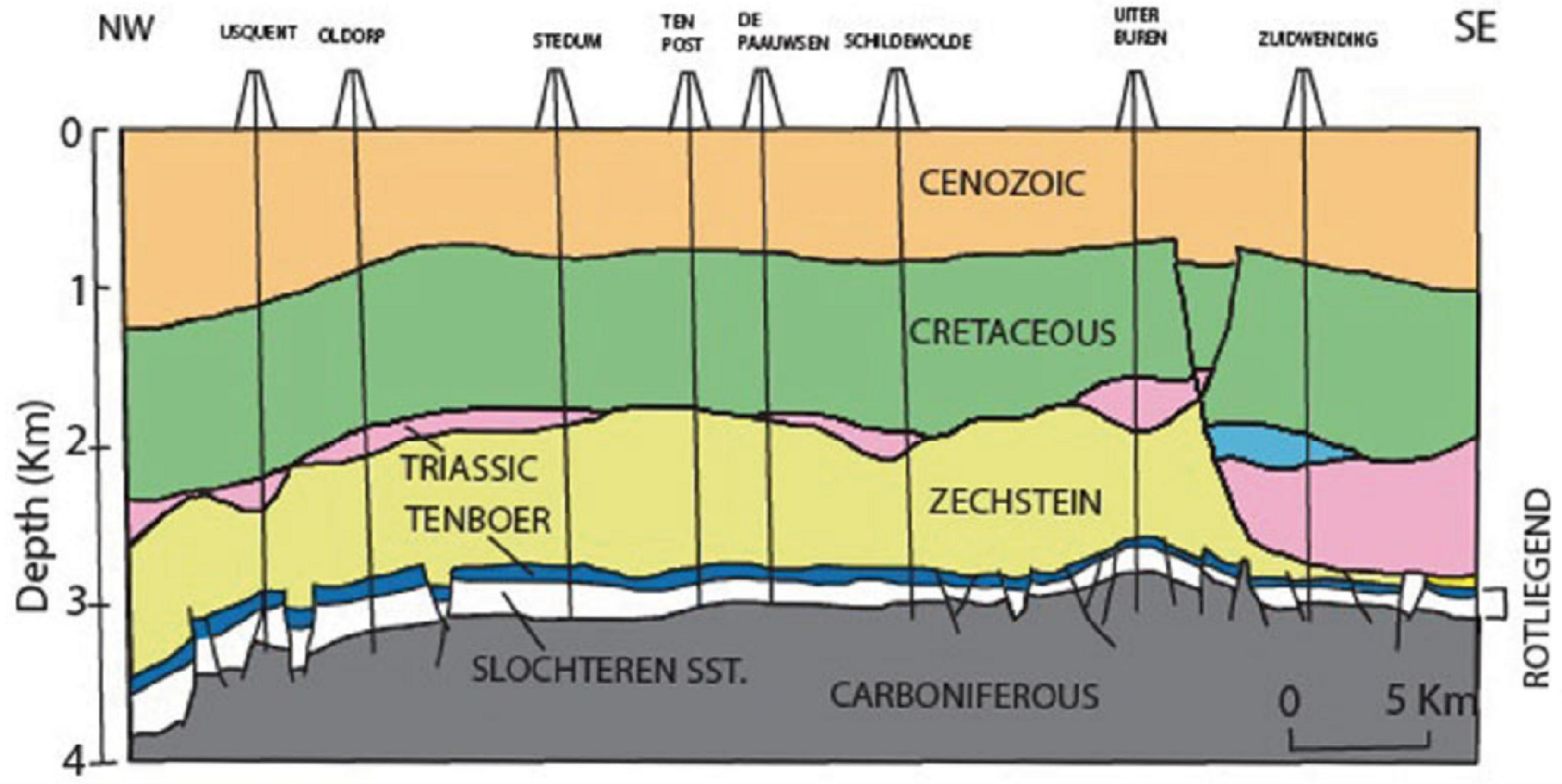
1959: 2600 BCM
2013: 800 BCM
2080: einde winning
Laagcalorisch gas



Figuur B7: Groningen volumes in Bcm/jaar. Vanaf 2020 zal de productie van het Groningen veld snel afnemen vanwege teruglopende productiecapaciteit.

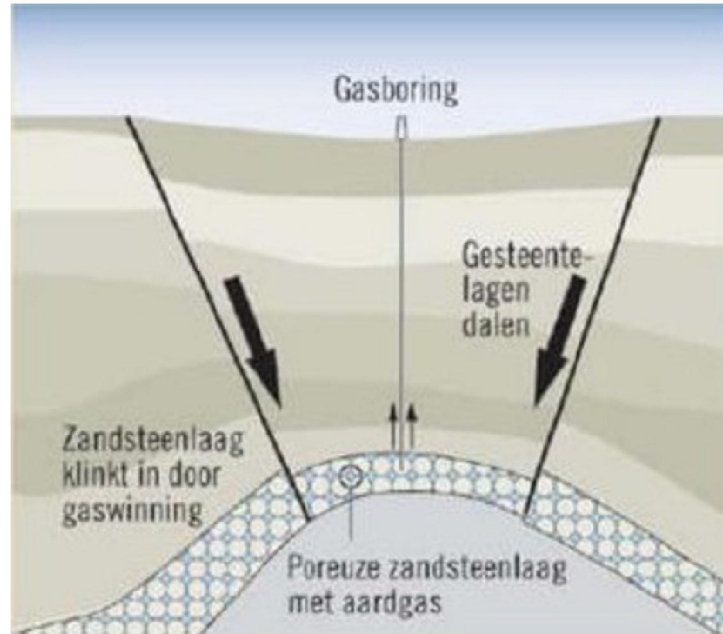


Dwarsdoorsnede Groningenveld



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bodemdaling en aardbevingen

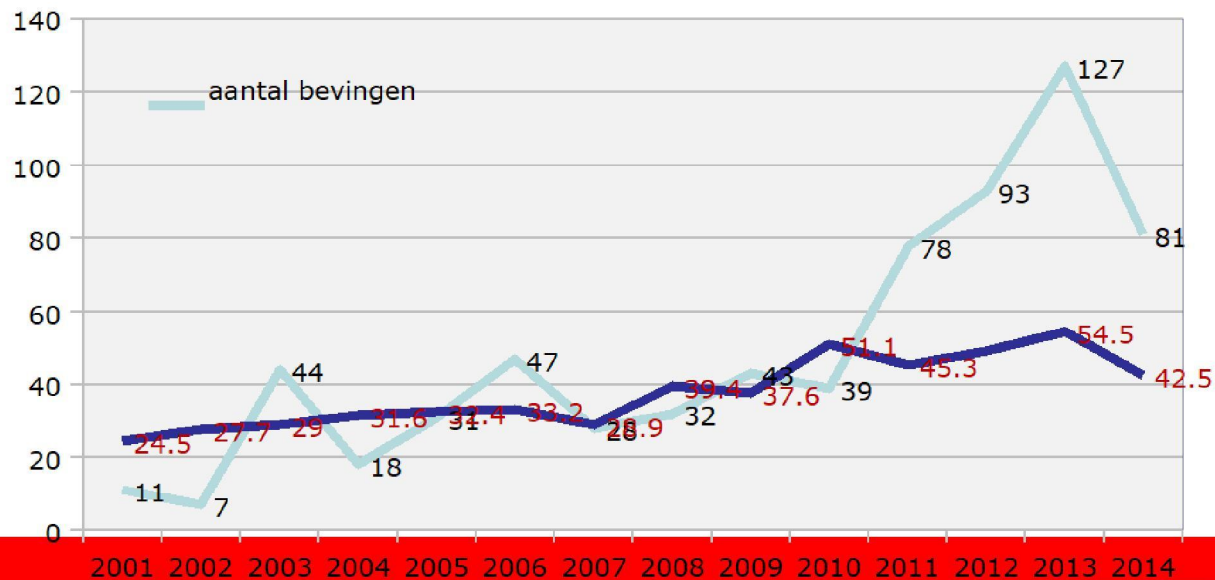


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productie en bevingen

Per 1 maart 2015:

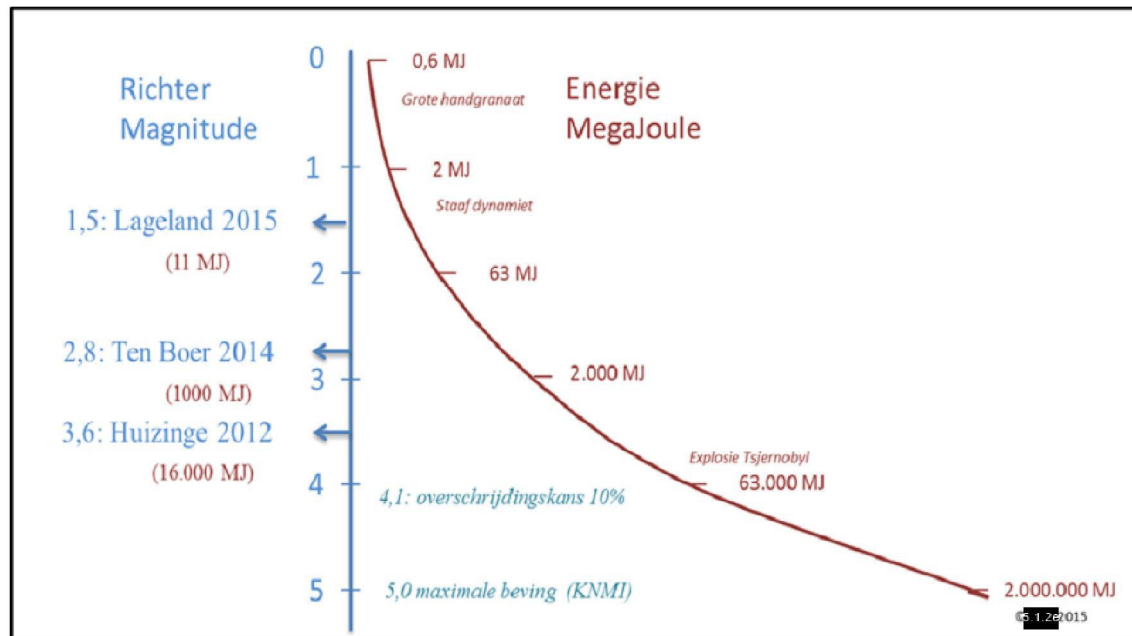
- Totaal schademeldingen: 34.804
- Groningen 3.889, Loppersum 3.580
- 81 bevingen in 2014; 23 bevingen 2015
- Productie 2014 42,4 miljard m3



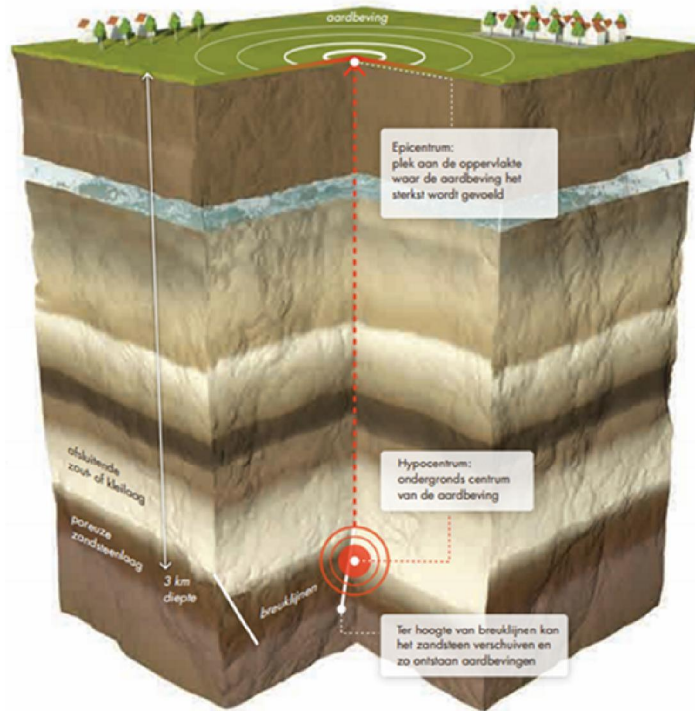
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kans op aardbeving

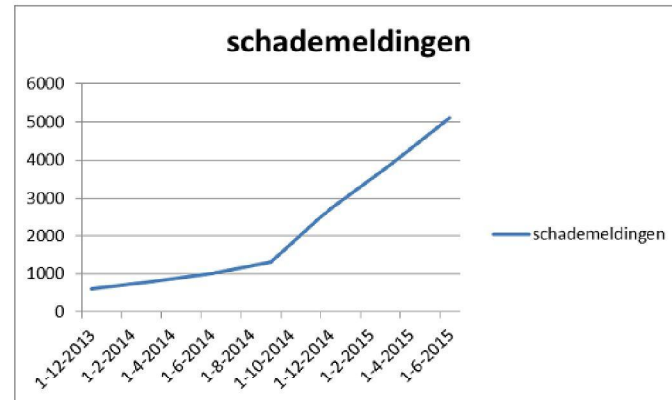
Periode	Maximum Magnitude Richter		
	P50	P10	P2
'13-16	3.4	4.1	4.6
'13-18	3.6	4.4	4.9



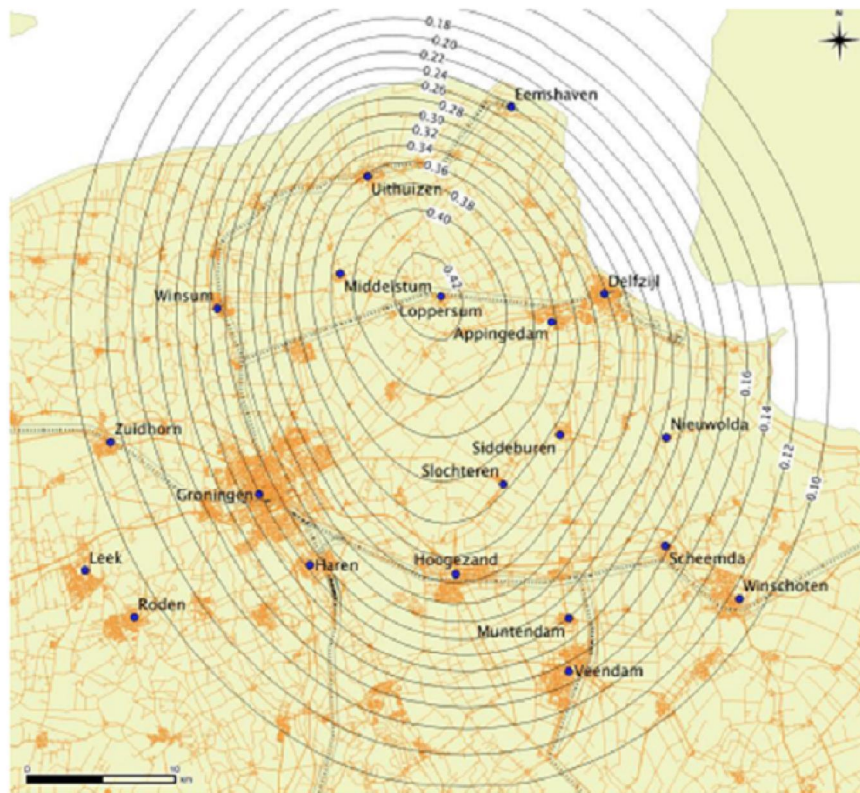
Peak Ground Acceleration



Periode	Maximum PGA		
	P50	P10	P2
'13-16	0.02g	0.12g	0.30g
'13-18	0.03g	0.18g	0.42g
'13-23	0.06g	0.33g	0.67g



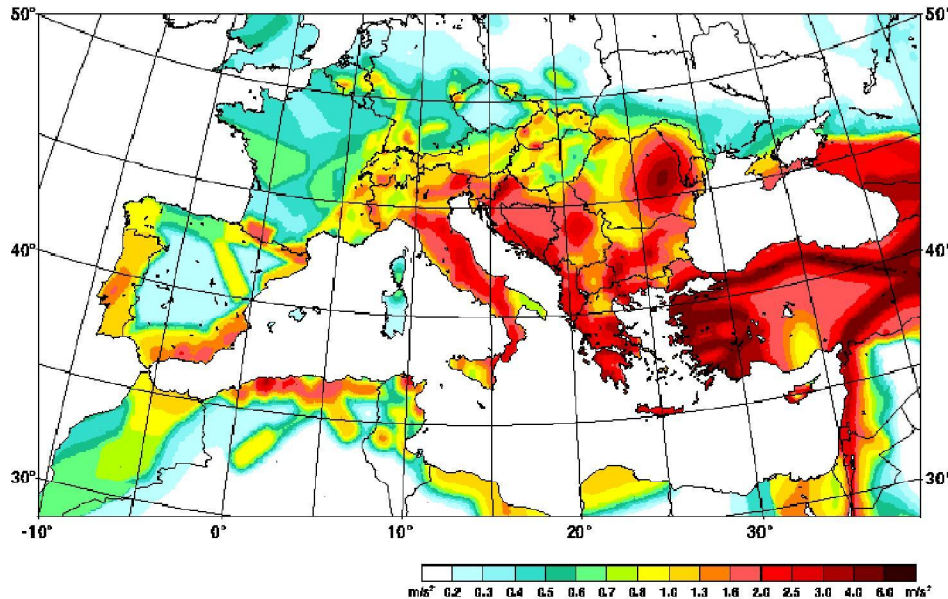
NPR groene versie (0,2%/jaar)



Stad: 0,32g tot 0,16g

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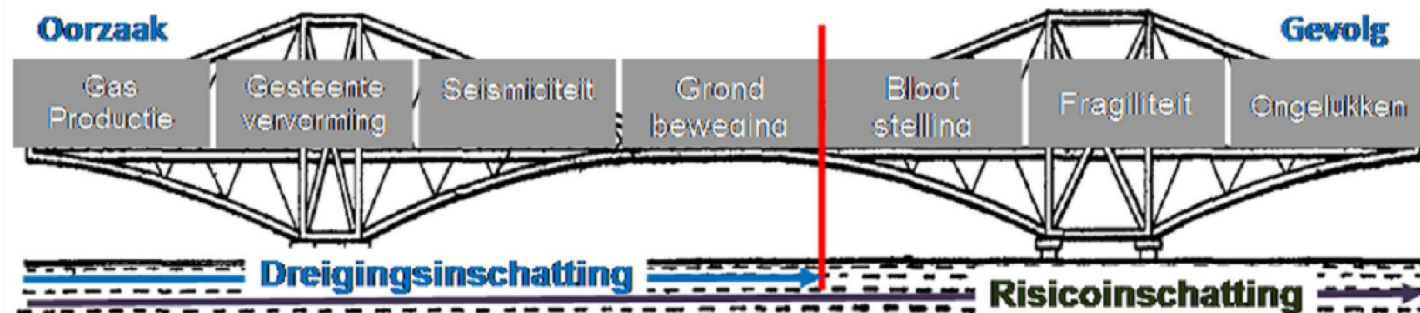
In Europa (0,2%/jaar)



Geel: 0,08g-0,13g
Oranje: 0,13g-0,15g
Rood: 0,15g-0,30g
Donkerrood: 0,30g-0,5g

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Opbouw onderzoek NAM



- Study and Data Acquisition Plan Induced Seismicity in Groningen for the update of the Winningsplan 2016
- Nieuwe risico-analyse per 1 mei 2015



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