

## Elf North Sea 3-D dataset

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### ABSTRACT

Data recorded in the North Sea (block L7d).

### L7D DATA FILES

**Raw Data** The full dataset is as big as 45Gb, available on DLT tapes.

**Common-azimuth Data** To be done.

**Velocity Model** /data\_3d/elf\_north\_sea/L7d-vel.H

Velocity model created by Elf & IFP<sup>2</sup> (Project “Helios”) using the so-called “SMART” method (Sequential Migration Aided Reflection Tomography). The structure of the salt dome is highly 3-D, with serious illumination problems under its edges (figure 1).

**Stack** /data\_3d/elf\_north\_sea/L7d-near-nmo-stack-fine.H

Near-offset (0-1000m) NMO-stack

**Zero-offset Migration** /data\_3d/elf\_north\_sea/comaz\_zo\_salt\_fine.h

**Prestack 2-D line**

**Usage** none (yet).

**Geometry** Acquisition: 2 sources,  $x$  streamers (most likely 3).

In3d:

```
-----  
***** L7d_all.H *****  
4 -esize Synched data_format-xdr_float  
-----  
n1=1500 o1=0.000000 d1=0.004000 label1=time  
n2=7411523 o2=1.000000 d2=1.000000 label2=trace number  
Data: in=/scrsa3/louis/Elf/Data/L7d_all.H@  
7411523 elements, 44469138000 bytes in data file  
-----
```

Attr3dhead:

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key	min	max	mean	nzero	rms	norm
cdp	2900.0000	3900.0000	3389.9319	7411523	3400.5400	9257668.44
offset	186.0000	3571.0000	1764.1710	7411523	1989.4291	5416044.20
ncdp_s	2773.4941	3926.8994	3438.5354	7411523	3449.2773	9390351.31
nligne_s	1346.6554	1520.4437	1428.9248	7411523	1429.5942	3891943.38
ncdp_g	2772.9077	4026.9609	3341.0813	7411523	3352.4868	9126847.67
nligne_g	1347.1848	1528.9202	1429.6726	7411523	1430.3911	3894112.88
s_x	-1686.7405	13691.9580	7180.4541	7411523	8044.3945	21900150.11
s_y	1416.3849	5761.0933	3473.1201	7411523	3641.2247	9912910.97
g_x	-1694.5596	15026.1074	5881.0698	7411522	6939.6676	18892629.00
g_y	1429.6204	5973.0039	3491.8162	7411523	3671.1157	9994286.74
nline	1354.4266	1515.5315	1429.2987	7411523	1429.9876	3893014.44
aoffset	185.6369	3571.9861	1764.5095	7411523	1989.8103	5417081.89
azimuth	-1.2745	1.5323	-0.0261	7411431	0.1345	366.08
cmp_x	-8.3235	13338.0527	6530.7617	7411522	7446.8040	20273262.93
cmp_y	1610.6659	5638.2871	3482.4683	7411523	3654.9572	9950296.70
offset_x	-3463.4939	3383.3154	-1299.3843	7411523	1980.6512	5392147.21
offset_y	-990.2041	786.0776	18.6959	7411431	190.6978	519157.71

Prob-

**lem** Multipathing - Illumination problems / Shadow zones - Common-angle gathers

**History of Data** Dataset given to SEP in 1998, originally for testing AMO and common-azimuth migration. The contact at Elf Exploration Production is Henri Calandra<sup>3</sup>.

**Preprocessing** A correction of amplitude has been applied: geometrical spreading

$$A(t) = \left( \frac{t}{250} \right)^{+1.8}$$

Also, the multiples due to sea bottom have already been removed.

**Proprietary Considerations** The L7d data are free to be used by SEP only, including publications in articles or SEP reports with the usual acknowledgements to Elf Aquitaine.

## REFERENCES

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<sup>3</sup>email: henri.calandra@elf-p.fr

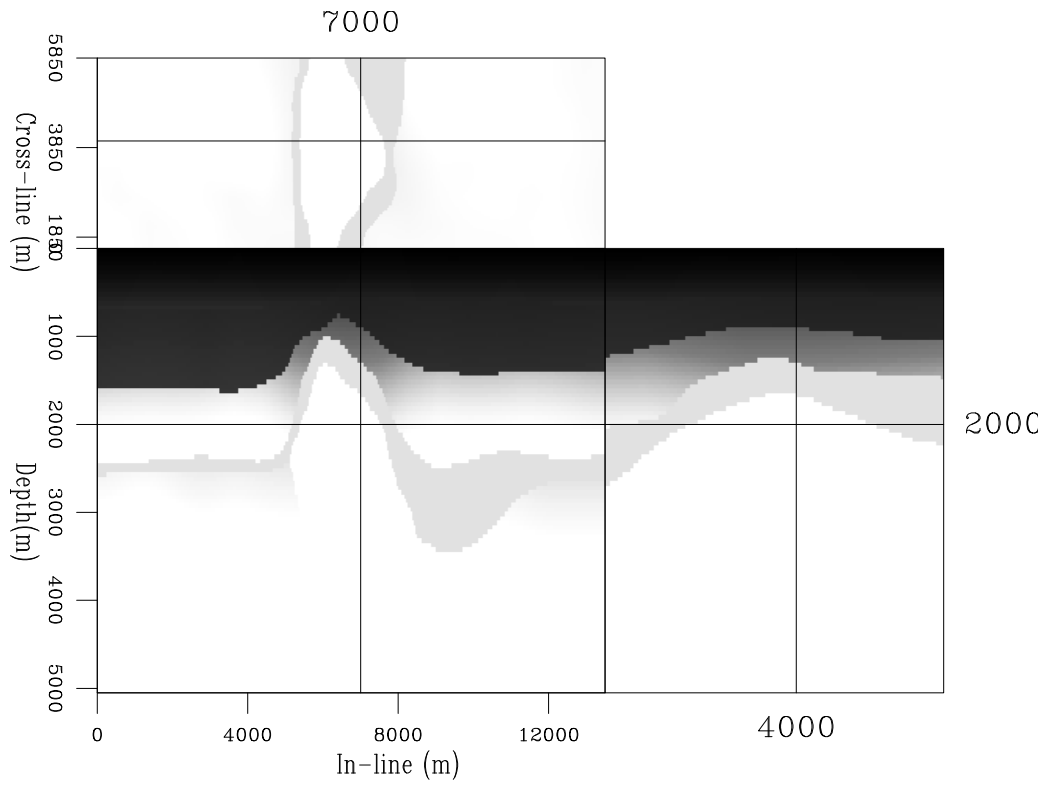


Figure 1: Elf "SMART" velocity model `elf-L7d-vel-model` [ER]

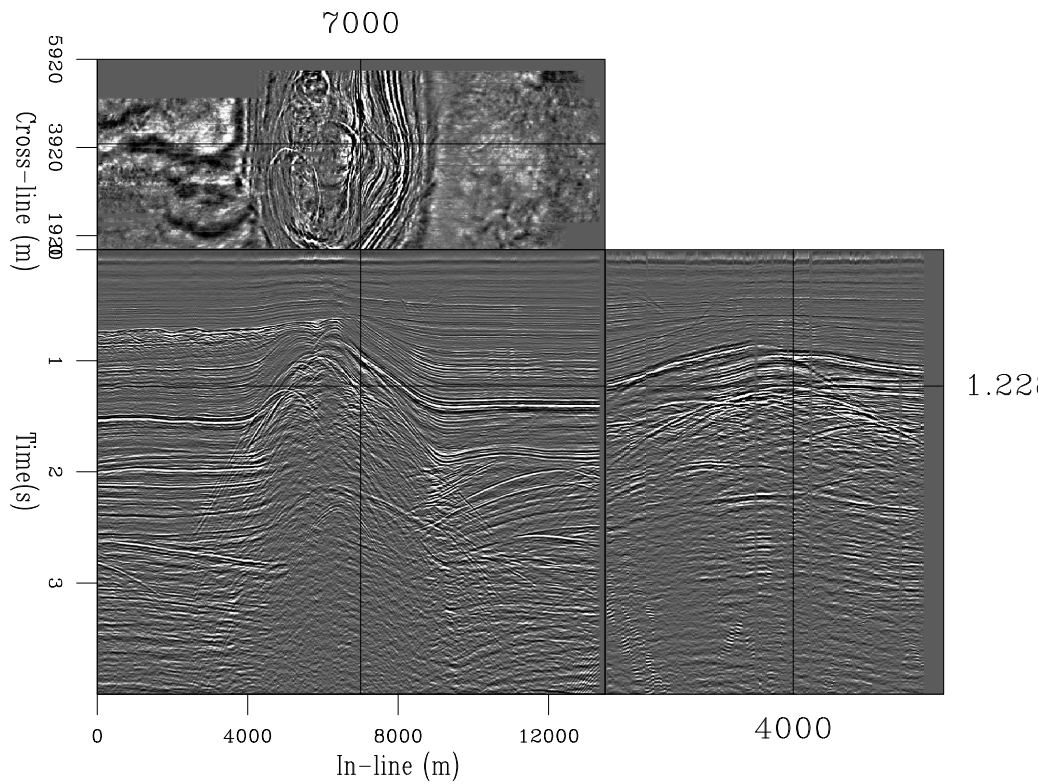


Figure 2: NMO-stack of the near offsets (0-1000m) `elf-L7d-nmo-stack` [ER]

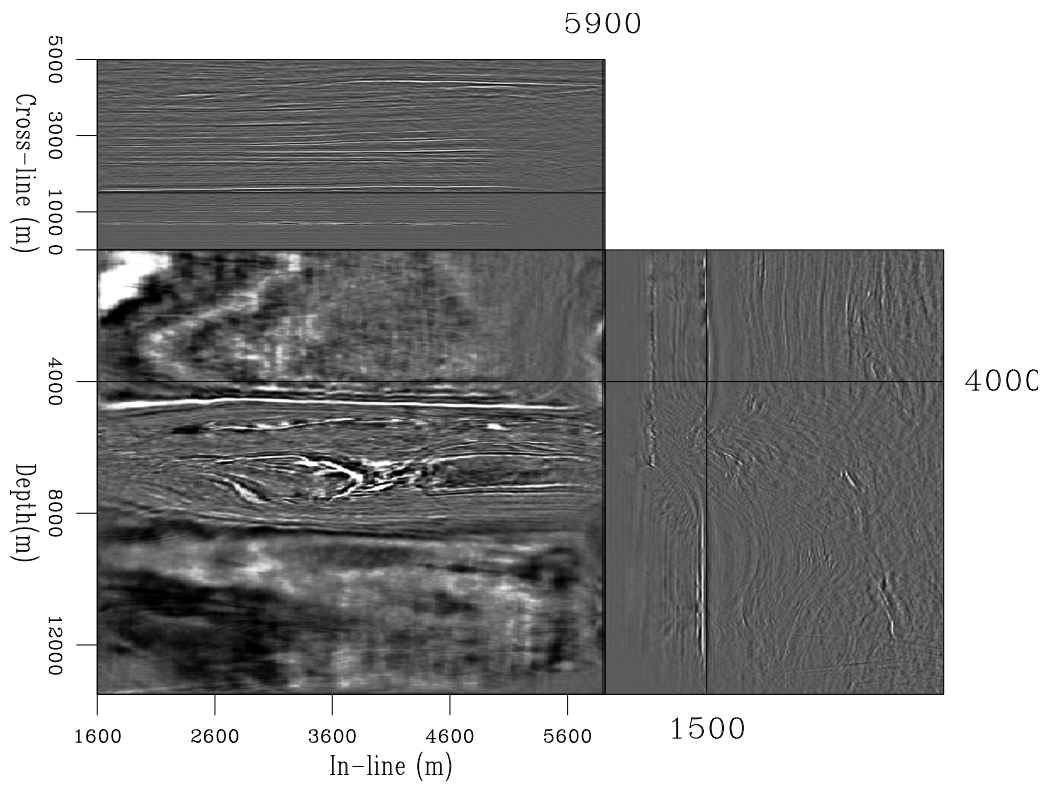


Figure 3: Zero-offset migration of the near offsets (0-1000m) `elf-L7d-zo-mig` [ER]

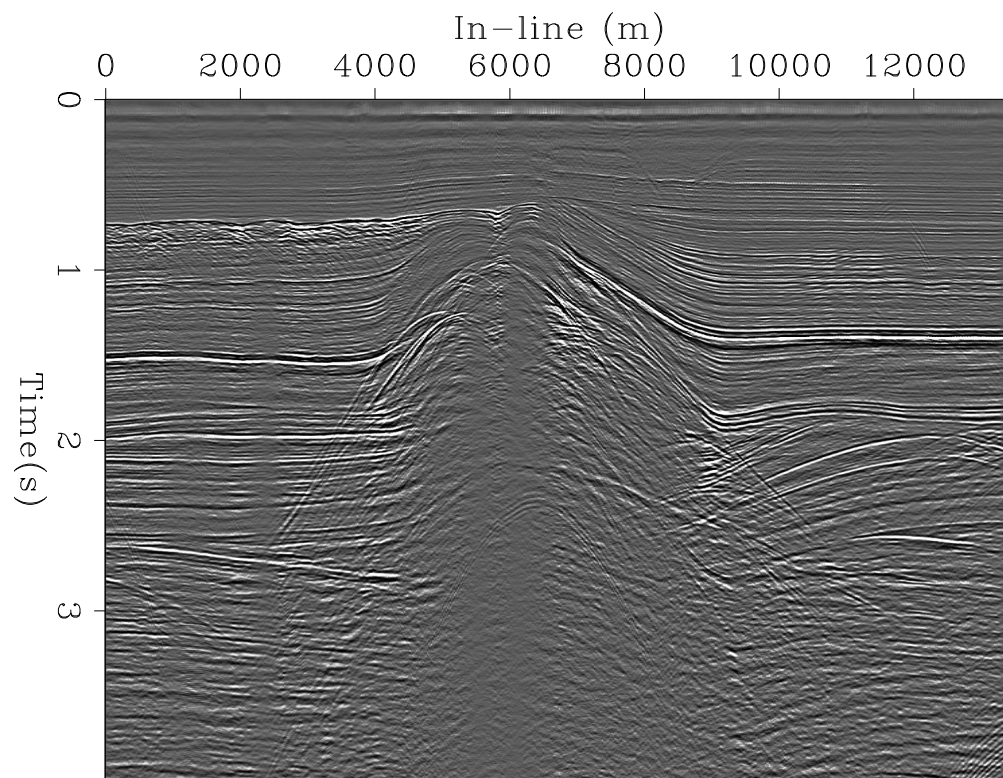


Figure 4: NMO-stack of the near offsets (0-1000m), section corresponding to the 2-D synthetic data `elf-L7d-2D-line-nmo-stack` [ER]

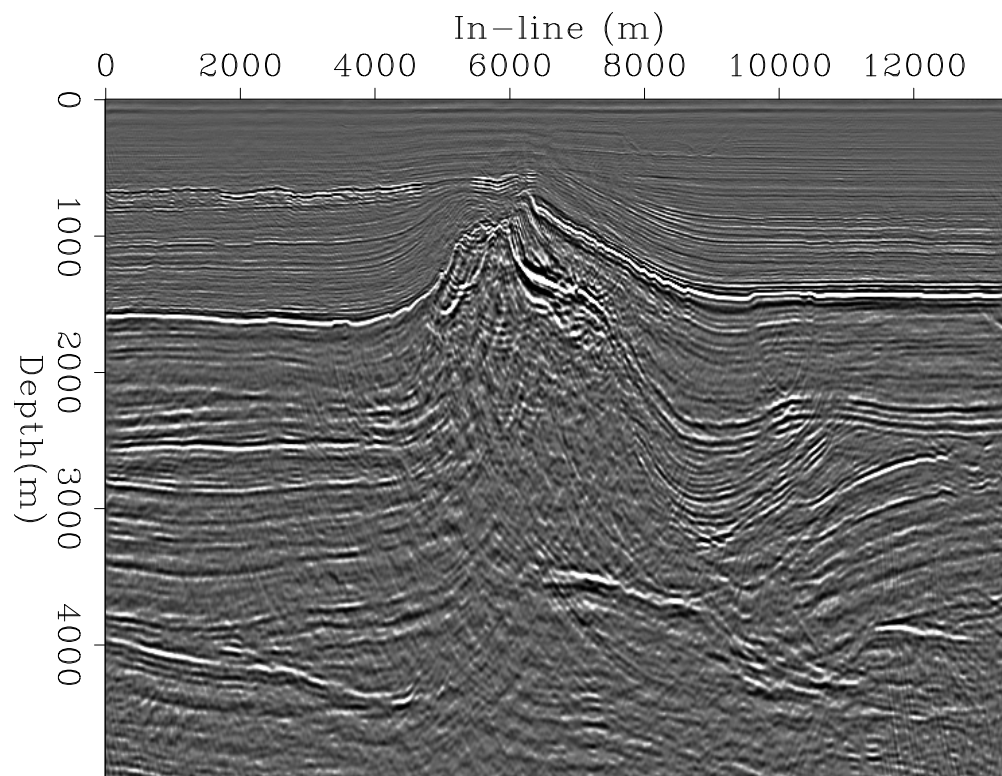


Figure 5: Zero-offset migration of the near offsets (0-1000m), section corresponding to the 2-D synthetic data `elf-L7d-2D-line-zo-mig` [ER]

