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SEG-EAGE salt data

Louis Vaillant[1]

ABSTRACT

The SEG-EAGE salt model dataset simulates a narrow-azimuth marine acquisition with 8 streamers. The salt body shows steep flanks and a rough surface on the top, making it a good test-case for accurate 3-D imaging methods. The data presented here is the so-called "classic" C3-NA dataset (avaible at http://archive.llnl.gov/SSD/classic/classicSalt.html#salt-c).

SEG-EAGE DATA FILES

Raw Data /book/3DI/Data/SEG/Salt/Sort/Sort.h
Common-azimuth Data /book/3DI/Data/SEG/Salt/ComAz/
Velocity Model /book/3DI/Data/SEG/Salt/Vel/Vel_SPK_SEG_WIND_400_good.H
Slowness model /book/3DI/Data/SEG/Salt/Vel/salt_slow_desp.h
Stack /usr/local/src/our/sepdatalib/seg-eage-salt/Dat/Salt-stack-h0-250.h
Zero-offset Migration none
Usage

- Traveltimes: (Sava and Biondi, 1997) (Fomel, 1997) (Sun and Fomel, 1998) (Alkhalifah, 1998) (Sava, 1999)
- Migration: (Malcotti and Biondi, 1998)
- AMO: (Biondi, 1998)
- Common-azimuth: (Biondi, 1999) (Vaillant and Biondi, 1999)

Geometry

```
In3d:
-----------------------------------------------------------------
                 ********** Sort.h ************
          4 -esize          Synched          data_format-xdr_float
-----------------------------------------------------------------
n1=625          o1=-0.080000    d1=0.008000     label1=time
n2=2313656      o2=1.000000     d2=1.000000     label2=trace number
```

[1]**email:** louis@sep.stanford.edu

```
Data: in=/book/3DI/Data/SEG/Salt/Sort/SORT_SCR/DATA_salt_sort.H@
    2313656 elements,  5784140000 bytes in data file
-----------------------------------------------------------------
n2=2313656       o2=1.000000     d2=1.000000     label2=trace_number
Headers in=/book/3DI/Data/SEG/Salt/Sort/SORT_SCR/DATA_salt_sort.H@@@
   57841400 elements,   231365600 bytes in data file
-----------------------------------------------------------------
grid axis2       n2=2    o2=1.000000     d2=1.000000     label2=trace_in_bin
grid axis3       n3=400          o3=770.000000   d3=20.000000    label3=cmp_x
grid axis4       n4=400          o4=3800.000000          d4=20.000000    label4=cmp_y
grid axis5       n5=34   o5=10.000000    d5=80.000000    label5=aoffset
Grid   in=/book/3DI/Data/SEG/Salt/Sort/SORT_SCR/DATA_salt_sort.H@@@@@
   10880000 elements,    43520000 bytes in data file
-----------------------------------------------------------------
Attr3dhead:
key               min        max         mean     nzero        rms         norm
sx          3860.0000  11700.0000   7780.4312  2313656   8115.8678 12344808.45
sy          1020.0000   8660.0000   5239.8931  2313656   5618.3059  8545840.28
gx          3720.0000  11840.0000   7780.4312  2313656   8116.3852 12345595.58
gy           500.0000   8660.0000   3981.2544  2313656   4474.9488  6806713.46
aoffset       20.0000   2683.6543   1266.6699  2313656   1481.9403  2254135.94
azimuth      -1.4289      1.4289      0.0000  2275288      0.2319      352.81
cmp_x        760.0000   8660.0000   4610.5737  2313656   5024.7714  7643032.36
cmp_y       3790.0000  11770.0000   7780.4312  2313656   8115.9970 12345005.07
offset_x   -2680.0000    100.0000  -1258.6385  2275288   1479.1035  2249820.91
offset_y    -140.0000    140.0000      0.0000  2313656     91.6515   139408.43
```

Problem Complex 3-D structure, faults & salt dome. Undersalt imaging.
History of Data Avaible for download from SEG/EAGE (website: http://wildcat.llnl.gov/SSD/ at the Lawrence Livermore National Laboratory)
Preprocessing Synthetic data
Proprietary Considerations Public

REFERENCES

Alkhalifah, T., 1998, The fast marching method in spherical coordinates: SEG/EAGE salt-dome model: SEP–**97**, 251–264.

Biondi, B., 1998, Azimuth moveout vs. dip moveout in inhomogeneous media: SEP–**97**, 83–94.

Biondi, B., 1999, Subsalt imaging by common-azimuth migration: SEP–**100**, 113–124.

Fomel, S., 1997, A variational formulation of the fast marching eikonal solver: SEP–**95**, 127–147.

Malcotti, H., and Biondi, B., 1998, Accurate linear interpolation in the extended split-step migration: SEP–**97**, 61–72.

Sava, P., and Biondi, B., 1997, Multivalued traveltime interpolation: SEP–**95**, 115–126.

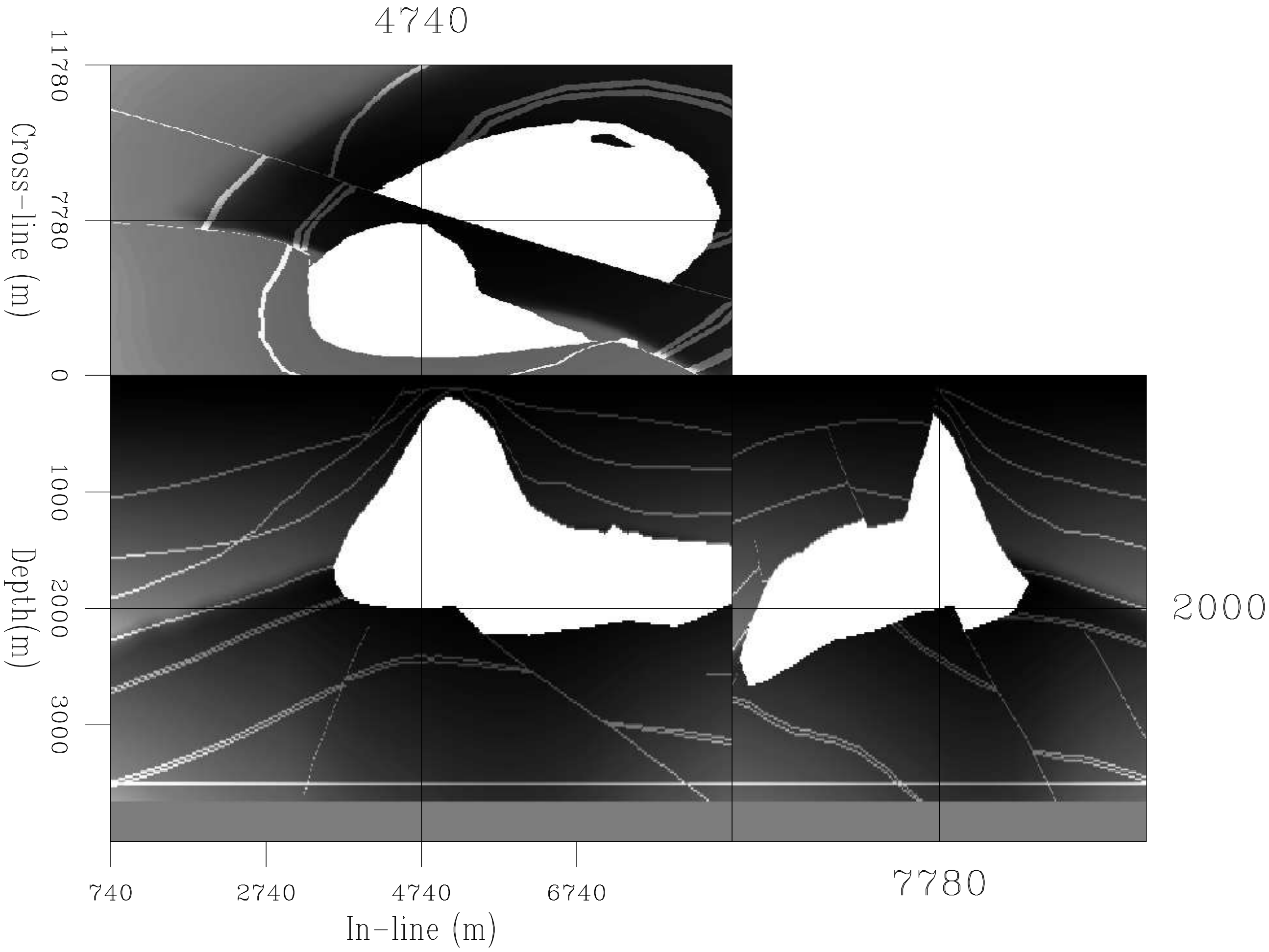

Figure 1: Velocity model seg-eage-salt-velmod [ER]

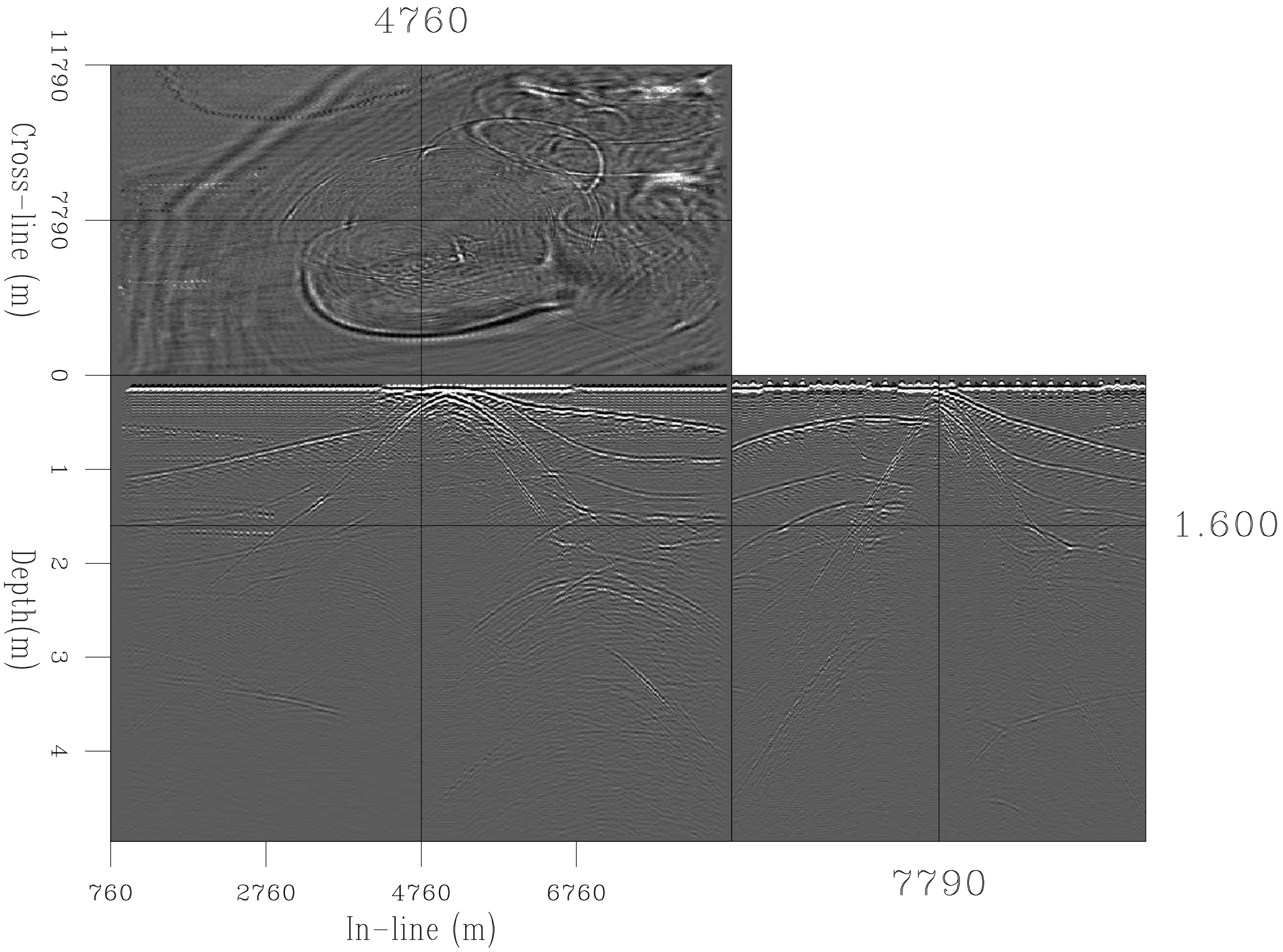

Figure 2: Stacked data seg-eage-salt-stack [ER]

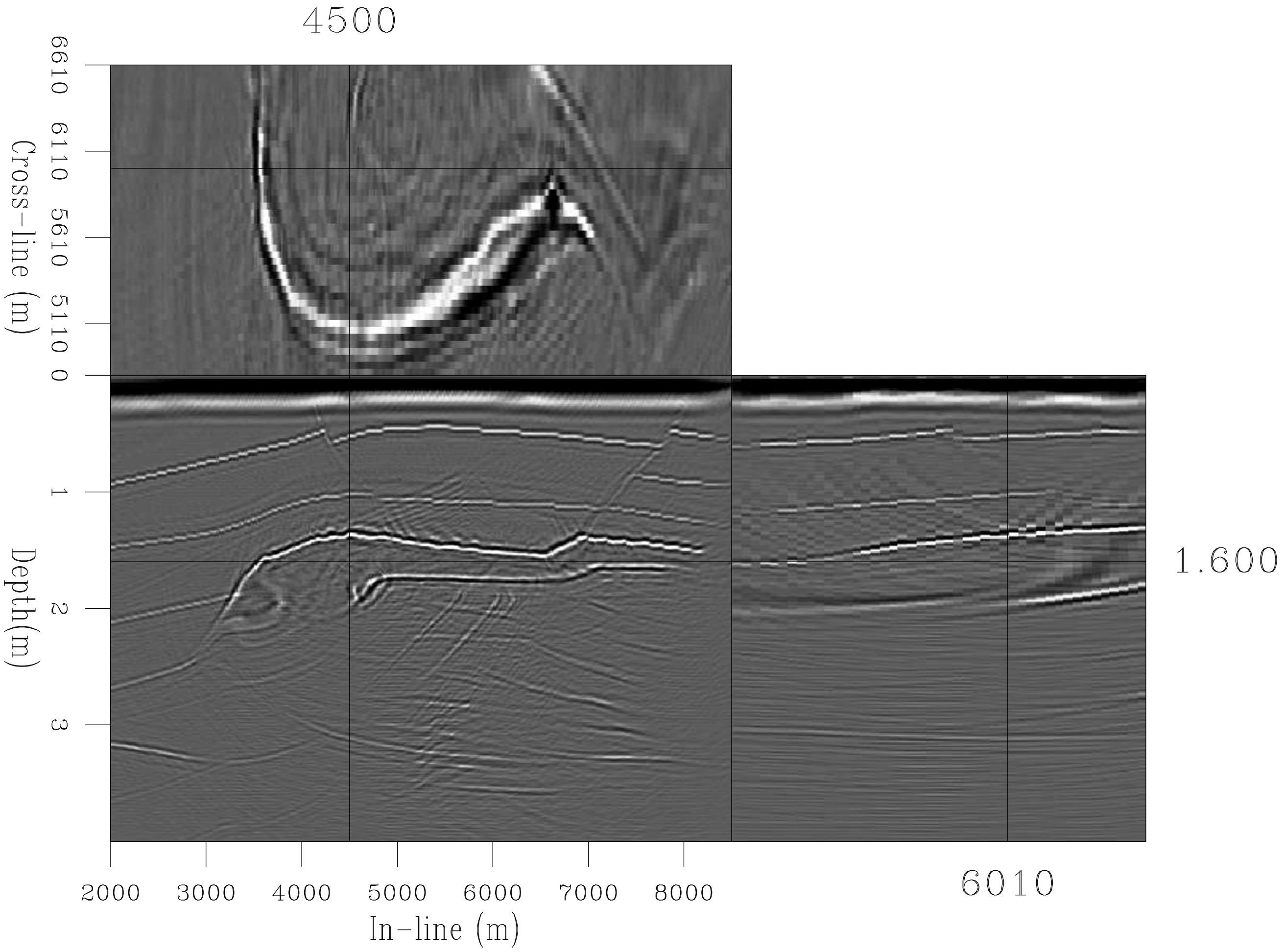

Figure 3: Two-pass migration seg-eage-salt-twopass [ER]

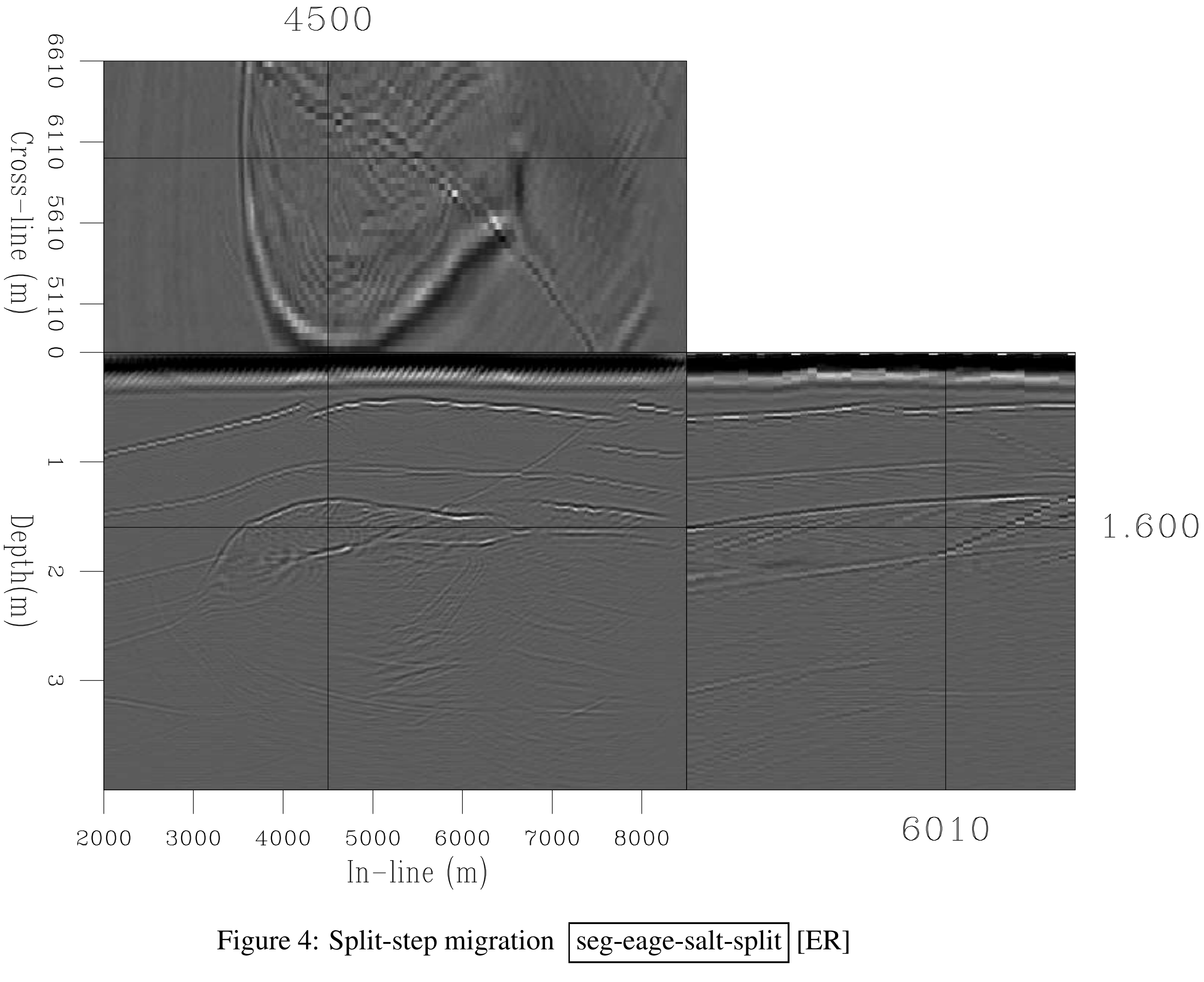

Figure 4: Split-step migration $\boxed{\text{seg-eage-salt-split}}$ [ER]

Sava, P., 1999, 3-D traveltime computation by Huygens wavefront tracing: SEP–**100**, 257–268.

Sun, Y., and Fomel, S., 1998, Fast-marching eikonal solver in the tetragonal coordinates: SEP–**97**, 241–250.

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