Common midpoint gathers

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ABSTRACT

Common midpoint gathers from GECO Barents Sea dataset (Hbarents), and from Western offshore Texas dataset (Hhale).

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GECO BARENTS SEA DATASET

Raw Data /data/oldq2/Hbarents
Velocity Model
Stack
Zero-offset Migration
Usage Applications of elastic theory: (Cunha and Muir, 1989); Processing: (wei] Mo, 1992)
Geometry

```
Hbarents:
        in="$Q2/cmg/Dbarents"
        expands to in="/q2/cmg/Dbarents"
        esize=4
        n1=750  n2=24   n3=2
                      36000 elem              144000 bytes
        d1=0.004          d2=50   d3=25
        o1=0?   o2=256  o3=0?
```

Problem
History of Data Two common midpoint gathers from Barents Sea common shot dataset. Donated to SEP by Geco.

```
FILE 400-599
------------
400-599 is a collection of 200 common midpoint gathers from GECO
Barents Sea line 1900. Trace 48 (the near offset trace) of CMG 400
is equivalent to trace 48 of CSP 400 on tape. The number 400 is
the ID number given on tape. Therefore the correspondence between
ID number and shotpoint is:

      CMG-ID  CSP-ID  CSP-REC CSP-SP  CMG-SP
      ------  ------  ------- ------  ------
      400     400     119     6119    6122
      599     599     318     6318    6321

since offset from guns to group 48 is 256 m.

#
# GECO Barents Sea common midpoint gathers sorted from data set GM.
# The 48 groups are ordered from far to near offset, so dx=-50 in reality.
# The "CDF" numbers on each tape label contain the shot record number
# range for each tape. For example, tape 71905 has the range of IDs:
#       970003 -- meaning record 397
#       290005 -- meaning record 529
# I have a routine to read desired records off the tape, which examines
# the record number in the header, e.g.:
#       /sep/thor/geco/geco 400 499 1 >/d4/400-499
# Please note that gathers can be split between tapes. -Jeff
#
 title="GECO Barents Sea, line 1900 sps 6122-6321"
```

```
 nt=1500 nx=48 np=2
 n1=1500 n2=48 n3=2
 n1=750 n2=24 n3=2
# in=/d4/400-599
 in=/q2/cmg/Dbarents
 dt=.004
 d1=.004
 dx=50 (offset, group spacing in meters)
 d2=50 (offset, group spacing in meters)
 dshot=25 (shot spacing in meters)
 d3=25
 x0=256 (offset to group 48)
 o2=256 (offset to group 48)
 author=thor


 The full set of common midpoint gathers can be found on tape.



Swab:    joe@mazama   Sun Feb 16 00:08:21 1986
#        input history file /r3/q2/cmg/Hbarents
                input() :    in ="/q2/cmg/Dbarents"
                output() : sets next in="/q2/cmg/Dbarents_007821_Rcp"
                #ibs=8192
                #obs=8192


#
Rcp: joe Sun Feb 16 00:08:28 PST 1986
Copying from mazama:/r3/q2/cmg/Hbarents
to hanauma:/q2/cmg/Hbarents
in="/q2/cmg/Dbarents"
#

vi: jon  November  1992
        current environment Q2="/q2"
        in="$Q2/cmg/Dbarents"
        esize=4
```
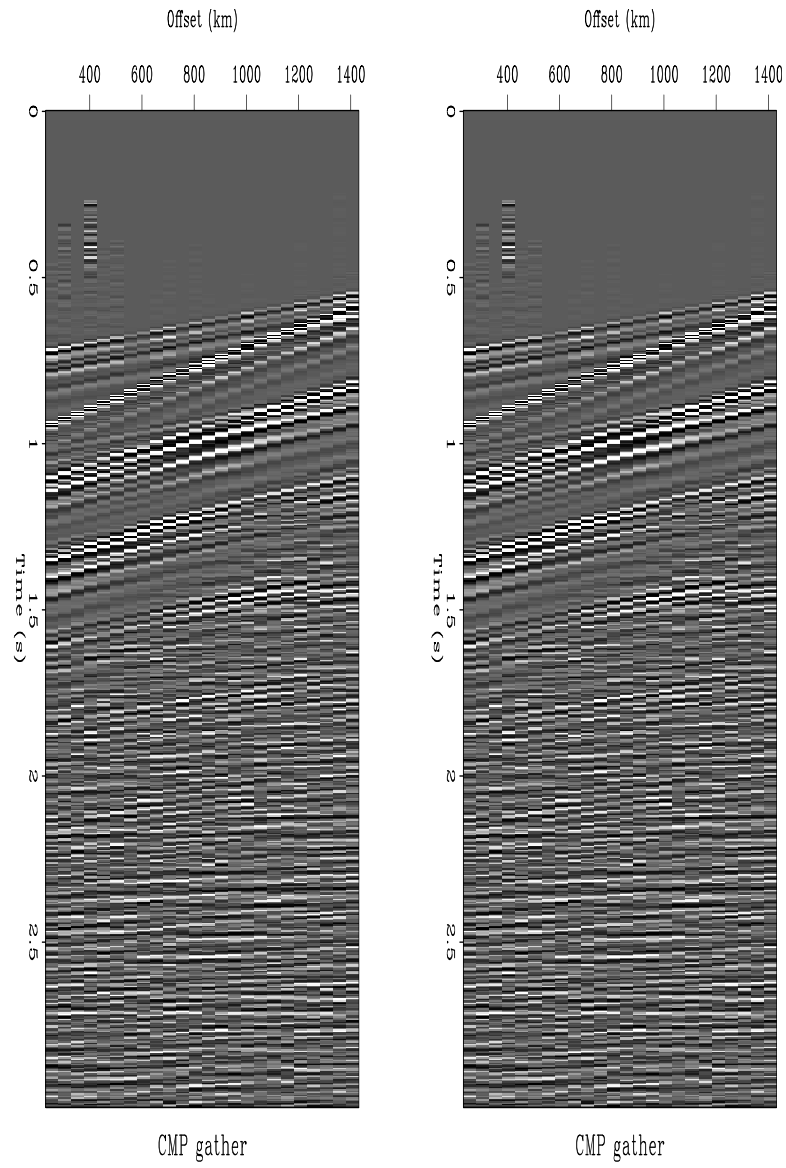
Preprocessing
Proprietary Considerations

Figure 1: Two CMP gathers from GECO Barents Sea dataset. | cmg-Hbarents | [ER]

WESTERN OFFSHORE TEXAS

Raw Data /data/oldq2/Hhale
Velocity Model
Stack
Zero-offset Migration
Usage Interpolation: (Ji and Claerbout, 1991)
Geometry

```
Hhale:
        in="$Q2/cmg/Dhale"
        expands to in="/q2/cmg/Dhale"
        esize=4
        n1=512   n2=24    n3=4
                        49152 elem              196608 bytes
        d1=0.008        d2=0.133        d3=50
        o1=0     o2=0.262        o3=50
        label1=SEC
        label2=KM
        label3=GATHER
```

Problem
History of Data Four CMP gathers from Western offshore Texas data.

```
# 4 CMP gathers from Western offshore Texas data
# Western CMP numbers are 1688,1788,1888,1988
# Dave Hale's CMP numbers are 50,100,150,200
# /q2/cos/Dhale contains a conventional CMP stack of 256 NMO-corrected gathers
title="CMP gathers" author="Hale"
in=/q2/cmg/Dhale
nt=512 dt=0.008 t0=0 tlab="SEC" vert="SEC"
nx=24 dx=0.133 x0=0.262 xlab="KM" horz="KM"
np=4 dp=50 p0=50 plane="GATHER"

# seplibed by JFC below
n1=512 d1=0.008 o1=0 label1="SEC"
n2=24 d2=0.133 o2=0.262 label2="KM"
n3=4 d3=50 o3=50 label3="GATHER"


Swab:   joe@mazama   Sun Feb 16 00:08:40 1986
#       input history file /r3/q2/cmg/Hhale
                input() :    in ="/q2/cmg/Dhale"
                output() : sets next in="/q2/cmg/Dhale_007821_Rcp"
                #ibs=8192
                #obs=8192


#
Rcp: joe Sun Feb 16 00:08:46 PST 1986
Copying from mazama:/r3/q2/cmg/Hhale
```

```
to hanauma:/q2/cmg/Hhale
in="/q2/cmg/Dhale"
#

vi: jon  November  1992
        current environment Q2="/data/oldq2"
        in="$Q2/cmg/Dhale"
        esize=4
```

Preprocessing
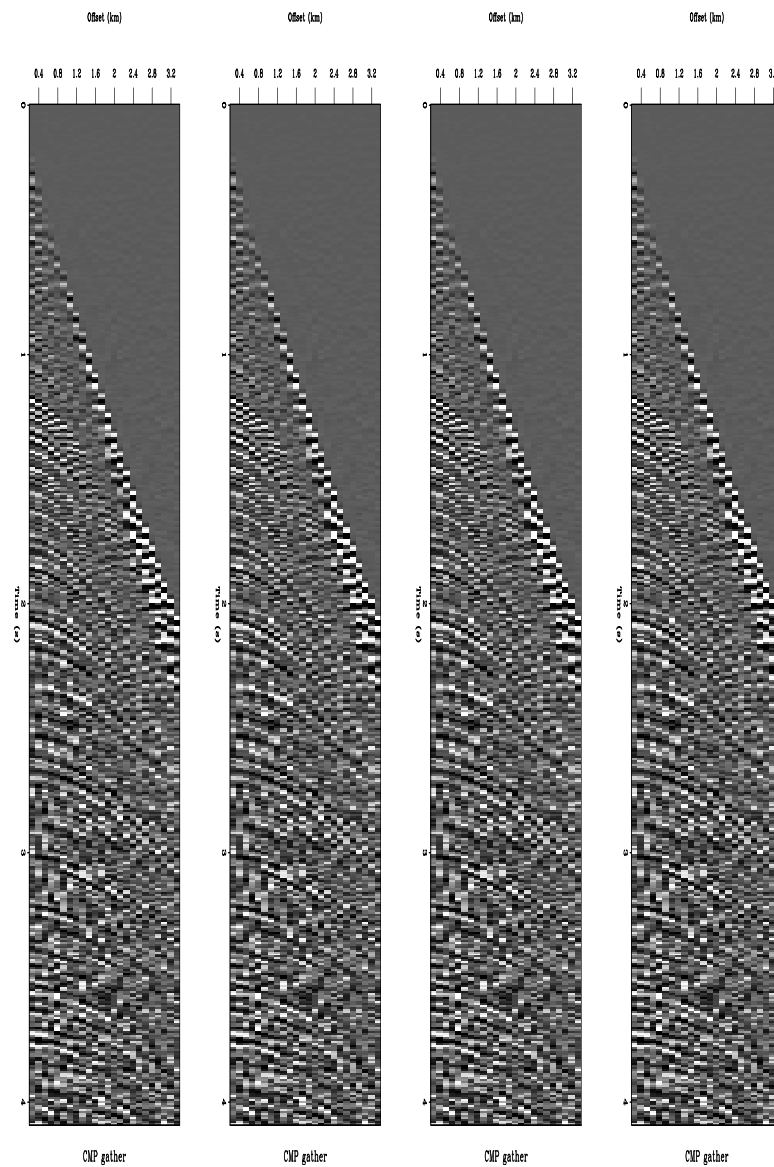**Proprietary Considerations**

Figure 2: Four CMP gathers from Western offshore Texas data. CMP number from left to right are 1688,1788,1888,1988 cmg-Hhale [ER]
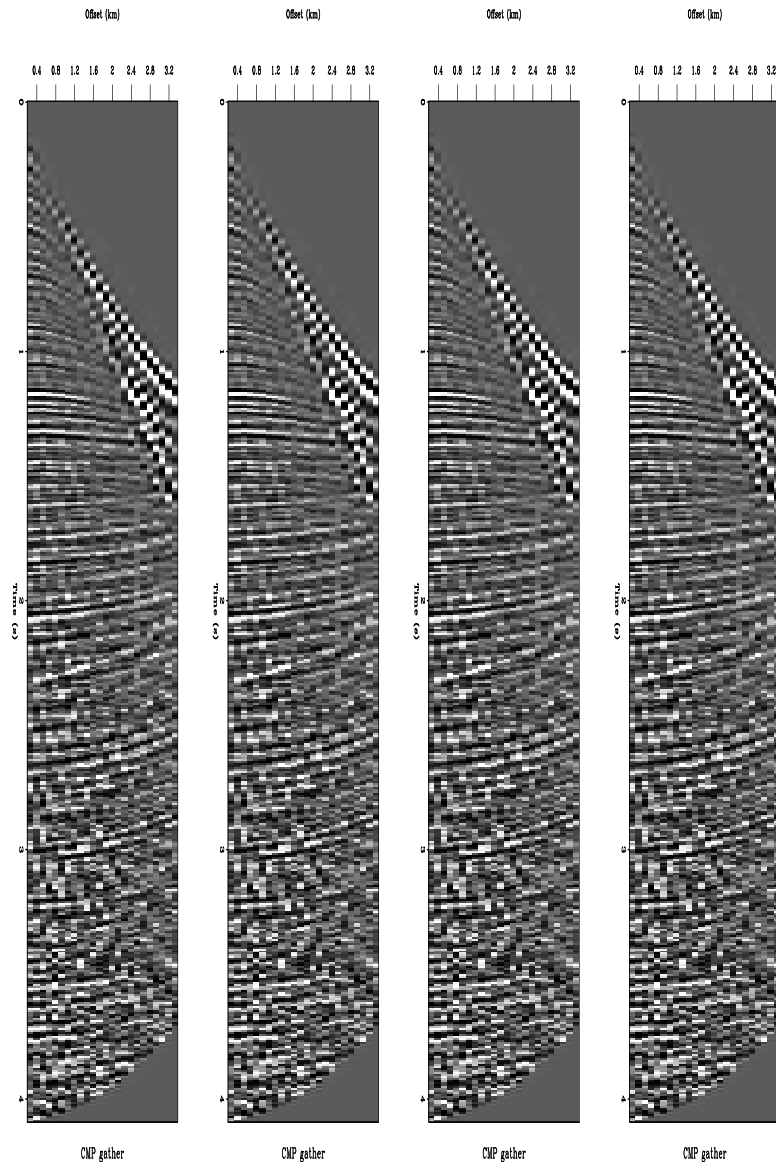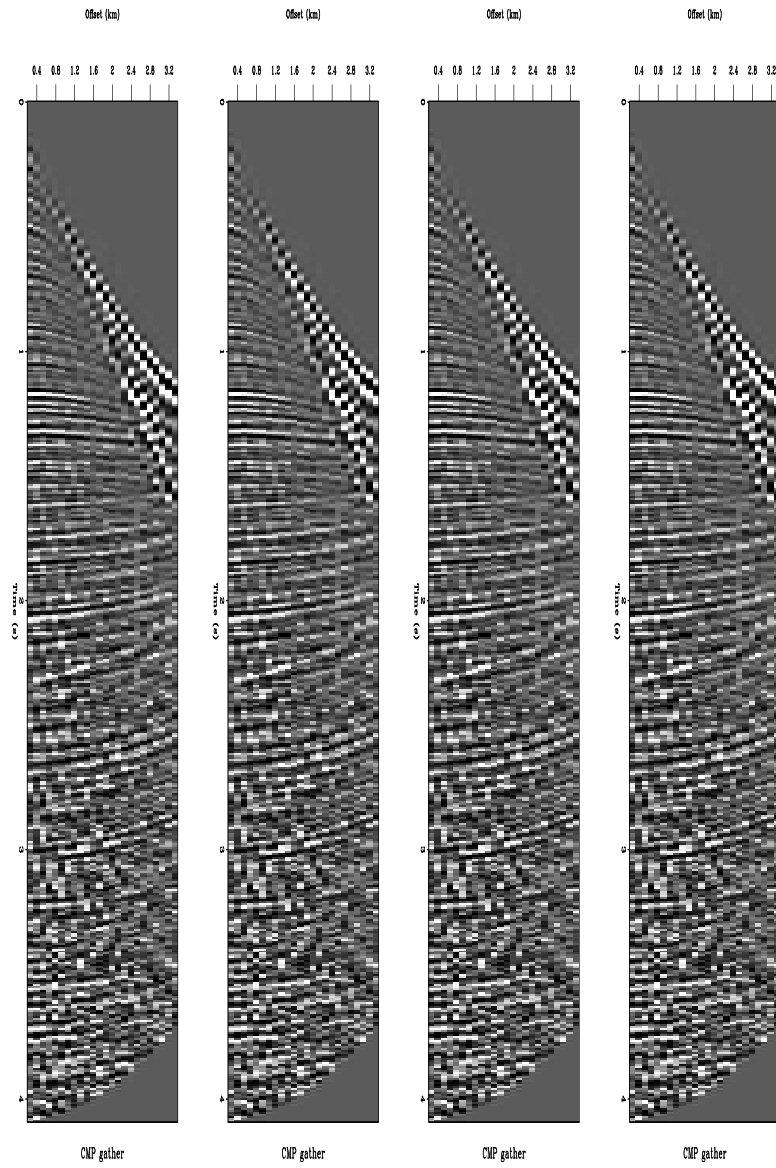
Figure 3: NMO-corrected gathers cmg-Hnmoall [ER]

Figure 4: NMO-corrected gathers cmg-Hnmoall-2 [ER]

REFERENCES

Cunha, C., and Muir, F., 1989, Separation of converted modes in marine data: SEP–**61**, 213–234.

Ji, J., and Claerbout, J. F., 1991, Trace interpolation using recursive dip filters: SEP–**72**, 43–56.

wei] Mo, L., 1992, Multiple attenuation using Abelian group theory: SEP–**73**, 43–54.