# LAMPIRAN

**Lampiran I (XML file untuk melakukan ekstraksi wavelet)**

```xml
<?xml version="1.0" encoding="UTF-8"?>
<wavelet_extraction>
 <wavelet_extraction_info>
  <name>boonsville1</name>
  <project>boonsvillernm</project>
  <author>astrid</author></wavelet_extraction_info>
 <well_info>
  <well>
   <name>boonsville</name>
   <well_log_info>
    <well_log_filename>BY-18D2.las</well_log_filename>
    <measured_depth_keyword>DEPTH</measured_depth_keyword>
    <sonic_DT_keyword>DT</sonic_DT_keyword>
    <shear_sonic_DT_keyword>DT</shear_sonic_DT_keyword>
    <density_keyword>RHOB</density_keyword>
    <gamma_keyword>GR</gamma_keyword>
   </well_log_info>
   <well_survey_info>
    <well_survey_filename>boonsville_survey3.txt</well_survey_filename>
    <total_vertical_depth_keyword>TVD</total_vertical_depth_keyword>
    <measured_depth_keyword>MD</measured_depth_keyword>
    <x_position_keyword>XCRD</x_position_keyword>
    <y_position_keyword>YCRD</y_position_keyword>
   </well_survey_info>
   <checkshot_info>
    <checkshot_filename>checkshot.txt</checkshot_filename>
    <checkshot_time_keyword>T</checkshot_time_keyword>
    <sigma_checkshot_time_keyword>sigmaT</sigma_checkshot_time_keyword>
    <measured_depth_keyword>SRD</measured_depth_keyword>
   </checkshot_info>
     <seismic_stack_info>

<seismic_minicube_filename>Boonsvillernm.su.swapped</seismic_minicube_filename>
    <min_offset>0</min_offset>
    <max_offset>1000</max_offset>
<reflector_time_ms>2000</reflector_time_ms>
```

```xml
    <stack_velocity>8000</stack_velocity>
<time_to_depth_local_systematic_time_shift_mean_ms>0</time_to_depth_local_systematic_time_shift_mean_ms>
<time_to_depth_local_systematic_time_shift_uncertainty_ms>5</time_to_depth_local_systematic_time_shift_uncertainty_ms>
    </seismic_stack_info>
     <well_positioning_systematic_shift_uncertainty>
     <x_position_offset>0</x_position_offset>
     <y_position_offset>0</y_position_offset>
     <sigma_x_position>0</sigma_x_position>
     <sigma_y_position>0</sigma_y_position>
    </well_positioning_systematic_shift_uncertainty>
   </well>
  </well_info>
  <extraction_info>
   <extraction_window_start_time>0.86</extraction_window_start_time>
   <extraction_window_end_time>1.03</extraction_window_end_time>
  </extraction_info>
  <wavelet_parameters>
   <maximum_coda_time_millis>27</maximum_coda_time_millis>
   <maximum_precursor_time_millis>27</maximum_precursor_time_millis>
  </wavelet_parameters>
  <seismic_minicube_header_words>
   <inline_header_keyword>fldr</inline_header_keyword>
   <xline_header_keyword>cdp</xline_header_keyword>
   <X_header_keyword>sx</X_header_keyword>
   <Y_header_keyword>sy</Y_header_keyword>
  </seismic_minicube_header_words>
  <output>
<maximum_likelihood_wavelet_filename>MLwavelet.MOST_LIKELY.stack.n.su</maximum_likelihood_wavelet_filename>
<maximum_likelihood_parameters_filename>MLparameters.MOST_LIKELY.stack.n.su</maximum_likelihood_parameters_filename>
<wavelet_realisations_filename>wavelet_realisations.su</wavelet_realisations_filenam>
<parameter_realisations_filename>parameter_realisations.su</parameter_realisations_filename>
   <blocked_log_file_prefix>blocked_</blocked_log_file_prefix>
   <realisation_number_header_field>mark</realisation_number_header_field>
  </output></wavelet_extraction>
```

**Lampiran II (Script Perl untuk membuat model awal)**

```perl
#!/usr/bin/perl

# number of traces
$NT=12901;   # best at 12901
# number of layers
$NL=2000;    # 2000
#range time
$DT=0.001;
# no. times (incl. base)
$N_times = $NL + 1;
# make blanks
system("sunull nt=$N_times ntr=$NT dt=$DT >| prior_traces.su");
# extract the headers
system("cat prior_traces.su | sustrip head=suhead.su > /dev/null");

$dz=5;   # thickness default std dev (wide & uninformative when applied)

#make data for layer times
open(FILE, ">prior_data.txt") or die "Can't open prior_data.txt";
for ($i=0;$i<$NT;$i++)
{
    $nsamples=0;
# for testing variable contact detail
# for ($j=0;$j<$NL;$j++)
#    {
#        print FILE ($j==0) ? 0+$i : (($j==1) ? 0+$i : 0),"\n";
#        $nsamples++;
#    }
    # times
    $t1=0.1;
    for ($j=0;$j<=$NL;$j++)
{
        $t_l = $t1 + 0.001*$i+(0.001*$j);
        print FILE ($j==0) ? $t1 : (($j==500) ? 2.4 : $t_l),"\n";
        $nsamples++;
    }
```

```
    }

close FILE;
# glue these onto the headers
system("cat  prior_data.txt  |  a2b  n1=1  |  supaste  ns=$nsamples  head=suhead.su  >|
prior_traces.su");
# swap to big endian if os is little (detects intel linux box)
if (`uname -m` eq "i686\n" || `uname -m` eq "i386\n")
{
    print "swapping bytes\n";
    system("cat  prior_traces.su  |  suswapbytes  format=1  >|  tmp.su;  mv  -f  tmp.su
prior_traces.su");
    print "output written to prior_traces.su:\n";
}
system("rm prior_data.txt suhead.su");
```

**Lampiran III (XML file untuk melakukan Inversi)**

```xml
<?xml version="1.0" encoding="UTF-8"?>
<inversion>
 <inversion_info>
  <name>boonsville</name>
  <project>boons</project>
  <author>james</author>
 </inversion_info>
 <seismic_data>
  <stack>
   <name>boons</name>
   <filename>Boonsvillernm.su.swapped</filename>
   <min_offset>0</min_offset>
   <max_offset varies_areally="true">1000</max_offset>
   <reflector_time varies_areally="true">2000</reflector_time>
   <stack_velocity varies_areally="true">8000</stack_velocity>
   <wavelet>
    <filename>MLwavelet.MOST_LIKELY.su</filename>
    <noise_rms>100</noise_rms>
   </wavelet>
  </stack>
```

```xml
    <AVO_terms>
      <A>1.0</A>
      <B>1.0</B>
    </AVO_terms>
  </seismic_data>
  <model_description>

    <top_layer>
      <name>top (1,0)</name>
      <reservoir_endmember>
        <name>reference sand</name>
        <brine>
          <name>brine</name>
        </brine>
      </reservoir_endmember>
<nonreservoir_endmember>
        <name>reference shale</name>
      </nonreservoir_endmember>
      <time varies_areally="false">950</time>
      <sigma_time varies_areally="false">100</sigma_time>
      <net_to_gross>0.0</net_to_gross>
      <depth varies_areally="false">5240</depth>
      <LFIV same_as_layer_above="false" varies_areally="false">0</LFIV>
    </top_layer>

    <middle_layer>
      <name>2</name>
      <reservoir_endmember>
        <name>reference sand</name>
        <brine>
          <name>brine</name>
        </brine>
        <gas>
          <name>gas A</name>
          <probability_of_gas varies_areally="false">0</probability_of_gas>
          <saturation_of_gas>0.8</saturation_of_gas>
        </gas>
      </reservoir_endmember>
      <nonreservoir_endmember>
```

```xml
        <name>reference shale</name>
      </nonreservoir_endmember>
      <time varies_areally="true" same_as_layer_above="false">960</time>
      <sigma_time varies_areally="false">100</sigma_time>
      <net_to_gross varies_areally="false"
same_as_layer_above="false">0.4</net_to_gross>
      <sigma_net_to_gross varies_areally="false">0.2</sigma_net_to_gross>
      <depth varies_areally="true" same_as_layer_above="false">5315</depth>
      <LFIV same_as_layer_above="false" varies_areally="false">0</LFIV>
     </middle_layer>
<bottom_layer>
   <name>bottom</name>
   <reservoir_endmember>
    <name>reference sand</name>
    <brine>
     <name>brine</name>
    </brine>
   </reservoir_endmember>
   <nonreservoir_endmember>
    <name>reference shale</name>
   </nonreservoir_endmember>
   <time varies_areally="false" same_as_layer_above="false">985</time>
   <sigma_time varies_areally="false">100</sigma_time>
   <net_to_gross>0.0</net_to_gross>
   <depth varies_areally="true" same_as_layer_above="false">5460</depth>
   <LFIV same_as_layer_above="false" varies_areally="false">0</LFIV>
   <t_base varies_areally="false">993</t_base>
</bottom_layer>
 </model_description>

 <rock_fluid_properties>
  <fluid_properties>
   <fluid>
    <name>gas A</name>
    <vp varies_areally="false">17000</vp>
    <rho varies_areally="false">0.32</rho>
   </fluid>
   <fluid>
    <name>brine</name>
```

```
                <vp>16000</vp>
                <sigma_vp>0</sigma_vp>
                <rho>1.01</rho>
                <sigma_rho>0</sigma_rho>
        </fluid>
            </fluid_properties>


            <rock_properties>
              <reservoir_endmember>
                <name>reference sand</name>
                <reference_fluid>brine</reference_fluid>
                <vp_curve>
                 <intercept varies_areally="false">17000</intercept>
                 <depth_coefficient
varies_areally="false">1.5</depth_coefficient>
                  <LFIV_coefficient>0</LFIV_coefficient>
                  <phi_float_coefficient>0</phi_
              <nonreservoir_endmember> float_coefficient>
                  <sigma varies_areally="false">250</sigma> <!-- FIXME;
realistically, +/- 200 -->
                </vp_curve>
                <vs_curve>
<intercept varies_areally="false">-2930</intercept>
                  <slope varies_areally="false">0.75</slope>
                  <sigma varies_areally="false">190</sigma> <!-- FIXME;
realistically, +/- 150 -->
                </vs_curve>
                <porosity_curve>
                 <intercept varies_areally="false">0.48</intercept>
                 <slope varies_areally="false">-1.9E-5</slope>
                 <sigma varies_areally="false">70</sigma>
                </porosity_curve>
                <vp_grain varies_areally="false">18000</vp_grain>
                <vs_grain varies_areally="false">13740</vs_grain>
                <rho_grain varies_areally="false">2.4</rho_grain>
              </reservoir_endmember>


                <name>reference shale</name>
```

```xml
    <vp_curve>
      <intercept varies_areally="false">12000</intercept>
      <depth_coefficient
varies_areally="false">1.5</depth_coefficient>
      <LFIV_coefficient>0</LFIV_coefficient>
      <sigma varies_areally="false">470</sigma>
    </vp_curve>
    <vs_curve>
      <intercept varies_areally="false">-1630</intercept>
      <slope>0.57</slope>
      <sigma varies_areally="false">140</sigma>
    </vs_curve>
    <density_curve>
      <factor>0.23</factor>
      <exponent>0.26</exponent>
      <sigma>0.02</sigma>
    </density_curve>
</nonreservoir_endmember>
  </rock_properties>
 </rock_fluid_properties>

<output>
  <density_ordering>full</density_ordering>
  <realisation_number_header_field>mark</realisation_number_header_field>
  <depth_models>false</depth_models>
  <master_depth_layer_number>1</master_depth_layer_number>
 </output>

<property_indices>
  <net_to_gross_link>4</net_to_gross_link><time_link>5</time_link>
  <depth_link>3</depth_link>
 </property_indices>
</inversion>
```