

## No Outlier

```
Plot()
{
MCMC_Sample("KaopapaMCMC",25,300000)
{
Sequence("Kaopapa")
{
Phase("Infrastructure")
{
Sequence("T1")
{
Boundary("T1 Start");
R_Date("471147",370,30);
Boundary("T 1 Wall Construction");
Boundary("T 1 End");
};
Sequence("T2")
{
Boundary("T2 Start");
R_Date("471144",340,30);
Boundary("T 2 Wall Construction");
Boundary("T 2 End");
};
Sequence("T3")
{
Boundary("T3 Start");
R_Date("370512",210,30);
Boundary("T3 Wall Construction");
Boundary("T3 End");
};
Sequence("T4")
{
Boundary("T4 Start");
Phase("TPQ")
{
R_Date("66207",270,20);
R_Date("66208",340,20);
R_Date("65613",360,20)
{
};
};
Boundary("Layer III/II Boundary");
R_Date("66205",350,20);
R_Date("77372",320,20);
Date("Event of Cinder Deposition");
```

```

Boundary("Layer II/I Boundary");
Phase("T4 Cross Slope Construction TPQ")
{
  R_Date("71329",220,20);
  Sequence("T4Surface Wall")
  {
    R_Date("65612",180,20);
    Boundary("T 4 East Surface Wall Construction");
  };
};
Boundary("T4 Cross Slope Wall Construction");
Boundary("T 4 End");
};
Sequence("T6")
{
  Boundary("T6 Start");
  R_Date("471145",370,30);
  Boundary("T 6 Wall Construction");
  Boundary("T 6 End");
};
Sequence("T9")
{
  Boundary("T9 Start");
  R_Date("65615",370,20);
  Boundary("T 9 Wall Construction");
  Boundary("T 9 End");
};
Sequence("T15")
{
  Boundary("T15 Start");
  Phase("T 15 TPQ")
  {
    R_Date("471146",330,30);
    Date("=T 6 Wall Construction");
  };
  Boundary("T 15 Wall Construction");
  R_Date("471148",350,30);
  Boundary("T 15 Late Wall Construction");
  Boundary("T 15 End");
};
Sequence("T20")
{
  Boundary("T20 Start");
  R_Date("471149",190,30);
  Boundary("T 20 Wall Construction");
  Boundary("T 20 End");
};

```

```

};
Sequence("T25")
{
  Boundary("T25 Start");
  R_Date("471151",320,30);
  Boundary("T 25 Wall Construction");
  Boundary("T 25 End");
};
Sequence("T33")
{
  Boundary("T33 Start");
  R_Date("66206",320,20);
  Boundary("T 33 Construction");
  R_Date("471150",100,30);
};
Sequence("T35")
{
  Boundary("T35 Start");
  Phase("T 35 TPQ")
  {
    R_Date("65614",350,20);
    Date("=T 2 Wall Construction");
  };
  Boundary("T 35 Wall Construction");
  Boundary("T 35 End");
};
Sequence("T4 West Wall")
{
  Boundary("T4 West Start");
  R_Date("71331",260,20);
  Boundary("T4 West Layer I");
  R_Date("71334",290,20);
  Boundary("T4 West Wall Construction");
  Date("=T4 Cross Slope Wall Construction");
  Boundary("T4 West Wall End");
};
Sequence("EP1")
{
  Boundary("EP1 Start");
  R_Date("71330",350,20);
  Boundary("EP1 Construction");
  Boundary("EP1 End");
};
Sequence("EP2")
{
  Boundary("EP2 Start");

```

```
R_Date("71332",290,20);
Boundary("EP2 Construction");
Boundary("EP2 End");
};
Sequence("EP4")
{
Boundary("EP4 Start");
Phase("EP4 TPQ")
{
R_Date("71335",330,20);
R_Date("71336",300,20);
};
Boundary("EP4 Wall Construction");
Boundary("EP4 End");
};
Sequence("EP5")
{
Boundary("EP5 Start");
R_Date("71333",250,20);
Boundary("EP5 Construction");
Boundary("EP5 End");
};
Sequence("NPS Rock Mound")
{
Boundary("NPS Mound Start");
Phase("NPS Mound TPQ")
{
R_Date("370513",340,30);
R_Date("370514",220,30);
};
Boundary("NPS Mound Construction");
Boundary("NPS Mound End");
};
Sequence("EP 6 Stone Lined")
{
Boundary("EP6 Start");
Boundary("EP6 Stone lined construction");
Phase("Hearth TAQ")
{
R_Date("77368",150,20);
R_Date("77369",260,20);
};
Boundary("Layer I/II Boundary");
R_Date("77371",100,20);
Boundary("EP6 End");
};
```

```
Sequence("EP 13 Wall")
{
  Boundary("EP13 Start");
  R_Date("77373",120,20);
  Boundary("EP13 Wall Construction");
  Boundary("EP13 End");
};
Sequence("EP 17 Terrace")
{
  Boundary("EP17 Start");
  R_Date("77370",160,20);
  Boundary("EP17 Construction");
  Boundary("EP17 End");
};
Sequence("EP 16 Terrace")
{
  Boundary("EP16 Start");
  R_Date("77376",290,20);
  Boundary("EP16 Construction");
  Boundary("EP16 End");
};
Sequence("EP27 Terrace")
{
  Boundary("EP27 Start");
  R_Date("77374",290,20);
  Boundary("EP27 Construction");
  Boundary("EP27 End");
};
Sequence("T34 Wall")
{
  Boundary("T34 Start");
  R_Date("77375",320,20);
  Boundary("T34 Construction");
  Boundary("T34 End");
};
};
Before("Great Mahele")
{
  C_Date(1850,5);
};
};
};
Sequence("Cinder Deposition")
{
  Phase("Before Cinder")
  {
```

```
Date("=66205");
Date("=77372");
Date("=77368");
Date("=77369");
Date("=66206");
Date("=71330");
};
Date("Event of Cinder Deposition");
Phase("After Cinder")
{
  Date("=65612");
  Date("=71329");
  Date("=77371");
};
};
};
```

## With Outlier Applied

```
Plot()
{
  Outlier_Model("Basic", N(0,2),0,"s");
  MCMC_Sample("KaopapaMCMC",25,300000)
  {
    Sequence("Kaopapa")
    {
      Phase("Infrastructure")
      {
        Sequence("T1")
        {
          Boundary("T1 Start");
          R_Date("471147",370,30)
          {
            Outlier("Basic",0.1);
          };
          Boundary("T 1 Wall Construction");
          Boundary("T 1 End");
        };
        Sequence("T2")
        {
          Boundary("T2 Start");
          R_Date("471144",340,30)
          {
            Outlier("Basic",0.1);
          };
          Boundary("T 2 Wall Construction");
          Boundary("T 2 End");
        };
        Sequence("T3")
        {
          Boundary("T3 Start");
          R_Date("370512",210,30)
          {
            Outlier("Basic",0.1);
          };
          Boundary("T3 Wall Construction");
          Boundary("T3 End");
        };
        Sequence("T4")
        {
          Boundary("T4 Start");
          Phase("TPQ")
          {
```

```
R_Date("66207",270,20)
{
  Outlier("Basic",0.1);
};
R_Date("66208",340,20)
{
  Outlier("Basic",0.1);
};
R_Date("65613",360,20)
{
  Outlier("Basic",0.1);
};
};
};
Boundary("Layer III/II Boundary");
R_Date("66205",350,20)
{
  Outlier("Basic",0.1);
};
R_Date("77372",320,20)
{
  Outlier("Basic",0.1);
};
Date("Event of Cinder Deposition");
Boundary("Layer II/I Boundary");
Phase("T4 Cross Slope Construction TPQ")
{
  R_Date("71329",220,20)
  {
    Outlier("Basic",0.1);
  };
  Sequence("T4Surface Wall")
  {
    R_Date("65612",180,20)
    {
      Outlier("Basic",0.1);
    };
    Boundary("T 4 East Surface Wall Construction");
  };
};
Boundary("T4 Cross Slope Wall Construction");
Boundary("T 4 End");
};
Sequence("T6")
{
  Boundary("T6 Start");
  R_Date("471145",370,30)
```

```
{
  Outlier("Basic",0.1);
};
Boundary("T 6 Wall Construction");
Boundary("T 6 End");
};
Sequence("T9")
{
  Boundary("T9 Start");
  R_Date("65615",370,20)
  {
    Outlier("Basic",0.1);
  };
  Boundary("T 9 Wall Construction");
  Boundary("T 9 End");
};
Sequence("T15")
{
  Boundary("T15 Start");
  Phase("T 15 TPQ")
  {
    R_Date("471146",330,30)
    {
      Outlier("Basic",0.1);
    };
    Date("=T 6 Wall Construction");
  };
  Boundary("T 15 Wall Construction");
  R_Date("471148",350,30)
  {
    Outlier("Basic",0.1);
  };
  Boundary("T 15 Late Wall Construction");
  Boundary("T 15 End");
};
Sequence("T20")
{
  Boundary("T20 Start");
  R_Date("471149",190,30)
  {
    Outlier("Basic",0.1);
  };
  Boundary("T 20 Wall Construction");
  Boundary("T 20 End");
};
Sequence("T25")
```

```

{
Boundary("T25 Start");
R_Date("471151",320,30)
{
Outlier("Basic",0.1);
};
Boundary("T 25 Wall Construction");
Boundary("T 25 End");
};
Sequence("T33")
{
Boundary("T33 Start");
R_Date("66206",320,20)
{
Outlier("Basic",0.1);
};
Boundary("T 33 Construction");
R_Date("471150",100,30);
};
Sequence("T35")
{
Boundary("T35 Start");
Phase("T 35 TPQ")
{
R_Date("65614",350,20)
{
Outlier("Basic",0.1);
};
Date("=T 2 Wall Construction");
};
Boundary("T 35 Wall Construction");
Boundary("T 35 End");
};
Sequence("T4 West Wall")
{
Boundary("T4 West Start");
R_Date("71331",260,20)
{
Outlier("Basic ",0.1);
};
Boundary("T4 West Layer I");
R_Date("71334",290,20)
{
Outlier("Basic",0.1);
};
Boundary("T4 West Wall Construction");

```

```
Date("=T4 Cross Slope Wall Construction");
Boundary("T4 West Wall End");
};
Sequence("EP1")
{
  Boundary("EP1 Start");
  R_Date("71330",350,20)
  {
    Outlier("Basic",0.1);
  };
  Boundary("EP1 Construction");
  Boundary("EP1 End");
};
Sequence("EP2")
{
  Boundary("EP2 Start");
  R_Date("71332",290,20)
  {
    Outlier("Basic",0.1);
  };
  Boundary("EP2 Construction");
  Boundary("EP2 End");
};
Sequence("EP4")
{
  Boundary("EP4 Start");
  Phase("EP4 TPQ")
  {
    R_Date("71335",330,20)
    {
      Outlier("Basic",0.1);
    };
    R_Date("71336",300,20)
    {
      Outlier("Basic",0.1);
    };
  };
  Boundary("EP4 Wall Construction");
  Boundary("EP4 End");
};
Sequence("EP5")
{
  Boundary("EP5 Start");
  R_Date("71333",250,20)
  {
    Outlier("Basic",0.1);
```

```

};
Boundary("EP5 Construction");
Boundary("EP5 End");
};
Sequence("NPS Rock Mound")
{
Boundary("NPS Mound Start");
Phase("NPS Mound TPQ")
{
R_Date("370513",340,30)
{
Outlier("Basic",0.1);
};
R_Date("370514",220,30)
{
Outlier("Basic",0.1);
};
};
Boundary("NPS Mound Construction");
Boundary("NPS Mound End");
};
Sequence("EP 6 Stone Lined")
{
Boundary("EP6 Start");
Boundary("EP6 Stone lined construction");
Phase("Hearth TAQ")
{
R_Date("77368",150,20)
{
Outlier("Basic",0.1);
};
R_Date("77369",260,20)
{
Outlier("Basic",0.1);
};
};
Boundary("Layer I/II Boundary");
R_Date("77371",100,20)
{
Outlier("Basic",0.1);
};
Boundary("EP6 End");
};
Sequence("EP 13 Wall")
{
Boundary("EP13 Start");

```

```
R_Date("77373",120,20)
{
  Outlier("Basic",0.1);
};
Boundary("EP13 Wall Construction");
Boundary("EP13 End");
};
Sequence("EP 17 Terrace")
{
  Boundary("EP17 Start");
  R_Date("77370",160,20)
  {
    Outlier("Basic",0.1);
  };
  Boundary("EP17 Construction");
  Boundary("EP17 End");
};
Sequence("EP 16 Terrace")
{
  Boundary("EP16 Start");
  R_Date("77376",290,20)
  {
    Outlier("Basic",0.1);
  };
  Boundary("EP16 Construction");
  Boundary("EP16 End");
};
Sequence("EP27 Terrace")
{
  Boundary("EP27 Start");
  R_Date("77374",290,20)
  {
    Outlier("Basic",0.1);
  };
  Boundary("EP27 Construction");
  Boundary("EP27 End");
};
Sequence("T34 Wall")
{
  Boundary("T34 Start");
  R_Date("77375",320,20)
  {
    Outlier("Basic",0.1);
  };
  Boundary("T34 Construction");
  Boundary("T34 End");
};
```

```
};
};
Before("Great Mahele")
{
  C_Date(1850,5);
};
};
};
Sequence("Cinder Deposition")
{
  Phase("Before Cinder")
  {
    Date("=66205");
    Date("=77372");
    Date("=77368");
    Date("=77369");
    Date("=66206");
    Date("=71330");
  };
  Date("Event of Cinder Deposition");
  Phase("After Cinder")
  {
    Date("=65612");
    Date("=71329");
    Date("=77371");
  };
};
};
};
```