

## Supplementary Online Material

Figure X1: Curve plot of individual [new] calibrated dates from Levels S-2 and S-3.

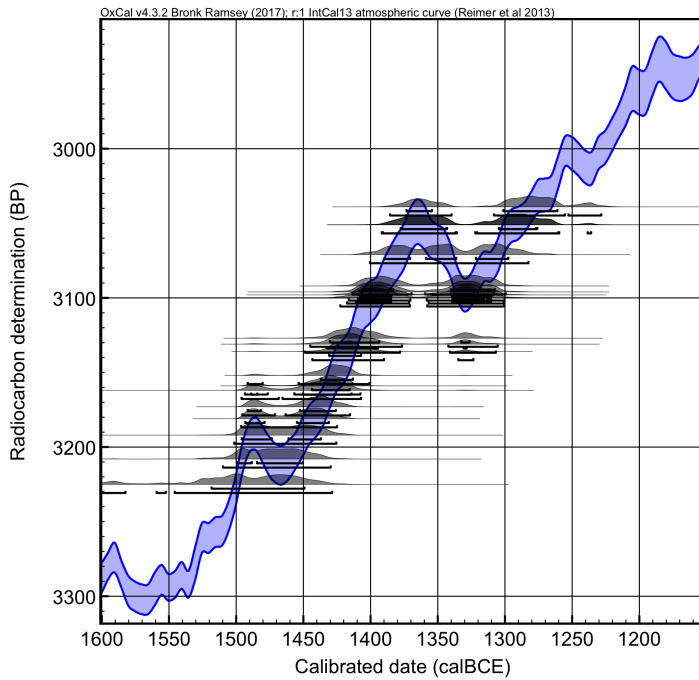


Figure X2: Bayesian analysis of new data for Levels S-2 and S-3, with alternate approach to outliers using agreement indices. GrM-13922 and GrM-12271 removed (<60% agreement). GrM-12271 barely falls short (58%) and its removal leads to some additional later probability (first half 13<sup>th</sup> c. BCE).

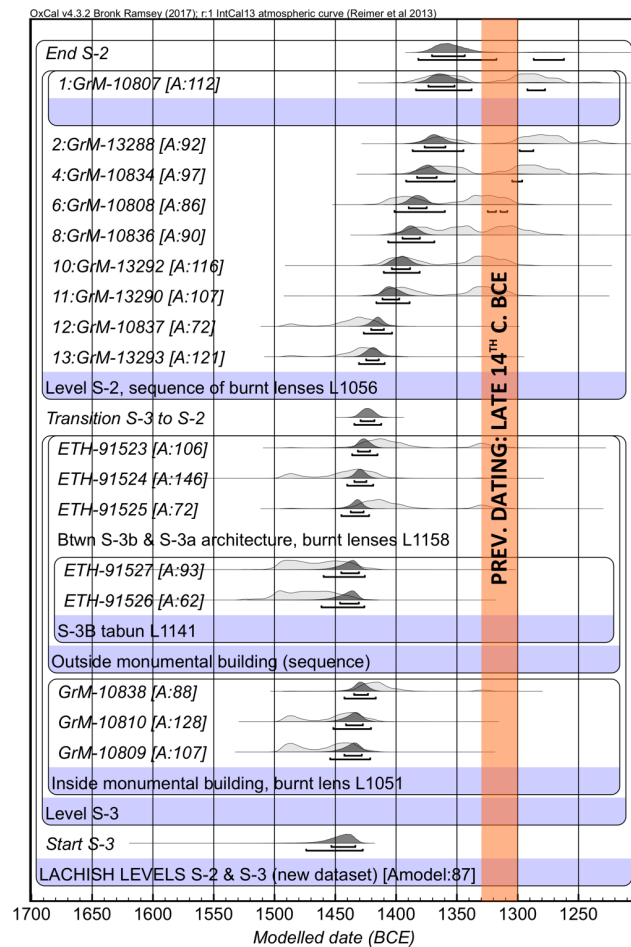
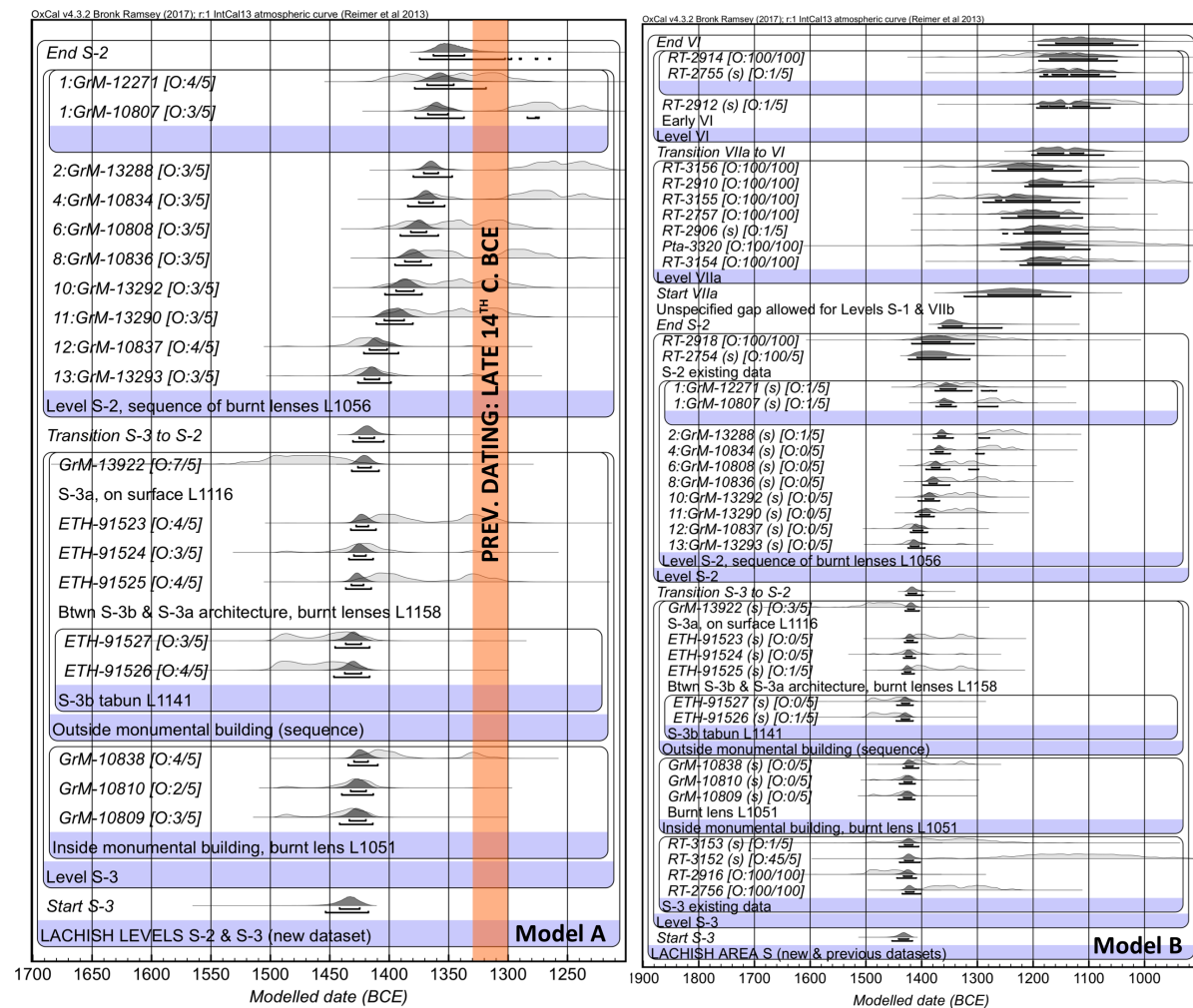


Figure X3: Models A and B with a regional offset (Manning et al. 2018; estimate of  $19 \pm 5$  radiocarbon years). The effect is minor overall.



## OXCAL MODELS

### MODEL A: Levels S-3 and S-2, new data only

```
Options()
{
  Resolution=1;
};
Plot()
{
  Outlier_Model("General",T(5),U(0,4),"t");
  Sequence("LACHISH LEVELS S-2 & S-3 (new dataset)")
  {
    Boundary("Start S-3");
    Phase("Level S-3")
    {
      Phase("Inside monumental building, burnt lens L1051")
      {
        R_Date("GrM-10809", 3181, 14)
        {
          Outlier("General",0.05);
        };
        R_Date("GrM-10810", 3173, 14)
        {
          Outlier("General",0.05);
        };
        R_Date("GrM-10838", 3136, 15)
        {
          Outlier("General",0.05);
        };
      };
    };
    Sequence("Outside monumental building (sequence)")
    {
      Phase("S-3b tabun L1141")
      {
        R_Date("ETH-91526", 3208, 21)
        {
          Outlier("General",0.05);
        };
        R_Date("ETH-91527", 3192, 21)
        {
          Outlier("General",0.05);
        };
      };
      Label("Btw n S-3b & S-3a architecture, burnt lenses L1158");
      R_Date("ETH-91525", 3131, 21)
      {
        Outlier("General",0.05);
      };
      R_Date("ETH-91524", 3162, 21)
      {
        Outlier("General",0.05);
      };
      R_Date("ETH-91523", 3127, 21)
      {
        Outlier("General",0.05);
      };
      Label("S-3a, on surface L1116");
      R_Date("GrM-13922", 3225, 30)
      {
```

```

    Outlier("General",0.05);
};
};
};
Boundary("Transition S-3 to S-2");
Sequence("Level S-2, sequence of burnt lenses L1056")
{
R_Date("13:GrM-13293", 3152, 15)
{
    Outlier("General", 0.05);
};
R_Date("12:GrM-10837", 3159, 15)
{
    Outlier("General",0.05);
};
R_Date("11:GrM-13290", 3098, 15)
{
    Outlier("General", 0.05);
};
R_Date("10:GrM-13292", 3096, 15)
{
    Outlier("General", 0.05);
};
R_Date("8:GrM-10836", 3071, 14)
{
    Outlier("General",0.05);
};
R_Date("6:GrM-10808", 3092, 14)
{
    Outlier("General",0.05);
};
R_Date("4:GrM-10834", 3051, 15)
{
    Outlier("General",0.05);
};
R_Date("2:GrM-13288", 3039, 15)
{
    Outlier("General", 0.05);
};
Phase()
{
R_Date("1:GrM-10807", 3051, 14)
{
    Outlier("General",0.05);
};
R_Date("1:GrM-12271", 3100, 17)
{
    Outlier("General",0.05);
};
};
};
};
Boundary("End S-2");
};
Axis(-1700,-1200);
};

```

## MODEL B: All Area S LBA data, existing and new

*Note: For the Charcoal Plus model data, refer to Dee and Bronk Ramsey (2014, SOM).*

```
Options()
{
  Resolution=1;
};
Plot()
{
  Outlier_Model("General",T(5),U(0,4),"t");
  Outlier_Model("Charcoal_p",Prior("Charcoal_p.prior"),U(0,3),"t");
  Sequence("LACHISH AREA S (new & previous datasets)")
  {
    Boundary("Start S-3");
    Phase("Level S-3")
    {
      Phase("S-3 existing data")
      {
        R_Date("RT-2756", 3080, 25)
        {
          Outlier("Charcoal_p", 1);
        };
        R_Date("RT-2916", 3210, 25)
        {
          Outlier("Charcoal_p", 1);
        };
        R_Date("RT-3152 (s)", 2945, 65)
        {
          Outlier("General", 0.05);
        };
        R_Date("RT-3153 (s)", 3125, 55)
        {
          Outlier("General", 0.05);
        };
      };
    };
    Phase("Inside monumental building, burnt lens L1051")
    {
      Label("Burnt lens L1051");
      R_Date("GrM-10809 (s)", 3181, 14)
      {
        Outlier("General",0.05);
      };
      R_Date("GrM-10810 (s)", 3173, 14)
      {
        Outlier("General",0.05);
      };
      R_Date("GrM-10838 (s)", 3136, 15)
      {
        Outlier("General",0.05);
      };
    };
    Sequence("Outside monumental building (sequence)")
    {
      Phase("S-3b tabun L1141")
      {
        R_Date("ETH-91526 (s)", 3208, 21)
        {
          Outlier("General",0.05);
        };
        R_Date("ETH-91527 (s)", 3192, 21)

```

```

{
  Outlier("General",0.05);
};
};
Label("Btwn S-3b & S-3a architecture, burnt lenses L1158");
R_Date("ETH-91525 (s)", 3131, 21)
{
  Outlier("General",0.05);
};
R_Date("ETH-91524 (s)", 3162, 21)
{
  Outlier("General",0.05);
};
R_Date("ETH-91523 (s)", 3127, 21)
{
  Outlier("General",0.05);
};
Label("S-3a, on surface L1116");
R_Date("GrM-13922 (s)", 3225, 30)
{
  Outlier("General",0.05);
};
};
};
Boundary("Transition S-3 to S-2");
Phase("Level S-2")
{
  Sequence("Level S-2, sequence of burnt lenses L1056")
  {
    R_Date("13:GrM-13293 (s)", 3152, 15)
    {
      Outlier("General", 0.05);
    };
    R_Date("12:GrM-10837 (s)", 3159, 15)
    {
      Outlier("General",0.05);
    };
    R_Date("11:GrM-13290 (s)", 3098, 15)
    {
      Outlier("General", 0.05);
    };
    R_Date("10:GrM-13292 (s)", 3096, 15)
    {
      Outlier("General", 0.05);
    };
    R_Date("8:GrM-10836 (s)", 3071, 14)
    {
      Outlier("General",0.05);
    };
    R_Date("6:GrM-10808 (s)", 3092, 14)
    {
      Outlier("General",0.05);
    };
    R_Date("4:GrM-10834 (s)", 3051, 15)
    {
      Outlier("General",0.05);
    };
    R_Date("2:GrM-13288 (s)", 3039, 15)
    {
      Outlier("General", 0.05);
    };
  }
}

```

```

};
Phase()
{
  R_Date("1:GrM-10807 (s)", 3051, 14)
  {
    Outlier("General",0.05);
  };
  R_Date("1:GrM-12271 (s)", 3100, 17)
  {
    Outlier("General",0.05);
  };
};
};
};
Label("S-2 existing data");
R_Date("RT-2754 (s)", 3945, 25)
{
  Outlier("General", 0.05);
};
R_Date("RT-2918", 3090, 40)
{
  Outlier("Charcoal_p", 1);
};
};
Boundary("End S-2");
Label("Unspecified gap allowed for Levels S-1 & VIIb");
Boundary("Start VIIa");
Phase("Level VIIa")
{
  R_Date("RT-3154", 2955, 25)
  {
    Outlier("Charcoal_p", 1);
  };
  R_Date("Pta-3320", 2940, 70)
  {
    Outlier("Charcoal_p", 1);
  };
  R_Date("RT-2906 (s)", 2955, 35)
  {
    Outlier("General", 0.05);
  };
  R_Date("RT-2757", 2995, 25)
  {
    Outlier("Charcoal_p", 1);
  };
  R_Date("RT-3155", 3055, 20)
  {
    Outlier("Charcoal_p", 1);
  };
  R_Date("RT-2910", 2885, 35)
  {
    Outlier("Charcoal_p", 1);
  };
  R_Date("RT-3156", 3025, 25)
  {
    Outlier("Charcoal_p", 1);
  };
};
};
Boundary("Transition VIIa to VI");
Sequence("Level VI")
{

```

```
Label("Early VI");
R_Date("RT-2912 (s)", 2915, 25)
{
  Outlier("General", 0.05);
};
Phase()
{
  R_Date("RT-2755 (s)", 2955, 25)
  {
    Outlier("General", 0.05);
  };
  R_Date("RT-2914", 2985, 30)
  {
    Outlier("Charcoal_p", 1);
  };
};
};
Boundary("End VI");
};
Axis(-1900,-900);
};
```