■ Processing APMP_Cal data from NPL India

```
In[1]:= Off[General::spell1];
```

```
In[2]:= dataPath = "g:\\Trip 2\\NPL India\\";
```

■ Definitions

```
In[25]:= dataHost = ReadCCTF["host2.cctf"];
        (*Host  reported values:*)
        RepHostIntDly = 64;
          RepHostRefDly = 53.8;
         RepHostAntDly = 250;
        RepHostDly = RepHostIntDly + RepHostAntDly - RepHostRefDly;

         (*Host  Receiver internal settings:*)
        RxHostIntDly = 64;
          RxHostRefDly = 0;
         RxHostAntDly = 250;
        RxHostDly = RxHostIntDly + RxHostAntDly - RxHostRefDly;
        HostCorrection = RepHostDly - RxHostDly;

        dataTrav = ReadCCTF["trav2.cctf"];
         (*Host   reported values:*)
        RepTravIntDly = 68;
          RepTravRefDly = 20.8;
         RepTravAntDly = 234.5;
        RepTravDly = RepTravIntDly + RepTravAntDly - RepTravRefDly;

         (*Travelling receiver internal settings:*)
        RxTravIntDly = 68;
          RxTravRefDly = 16;
         RxTravAntDly = 235;
        RxTravDly = RxTravIntDly + RxTravAntDly - RxTravRefDly;
        TravCorrection = RepTravDly - RxTravDly;
        Null
```

```
> Read 150 tracks from g:\Trip 2\NPL India\host2.cctf

> Read 56 tracks from g:\Trip 2\NPL India\trav2.cctf
```
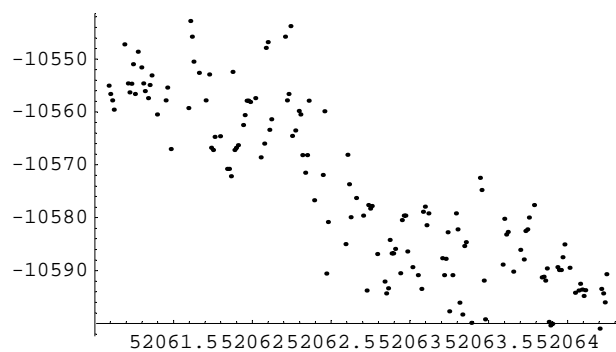
```
In[46]:= << Graphics`Graphics`
```

In[47]:= **ListPlot[MakeXY[Map[DateValue, dataTrav], Map[RefGPS, dataTrav]],**
　　　　 PlotRange → All];

(* RAW DATA FROM TRAVELLING RECEIVER *)
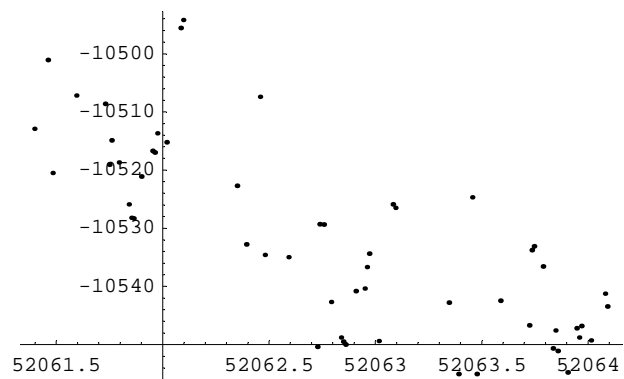
In[48]:= **ListPlot[MakeXY[Map[DateValue, dataHost], Map[RefGPS, dataHost]],**
　　　　 PlotRange → All];

(* RAW DATA FROM NPL HOST *)

*In[49]:=* **dMerge = MergeCCTF[dataHost, dataTrav];**

> First 150 tracks, second 56 tracks, matching 42 tracks

In[50]:= **diffdataGPS =**
　　　 Map[{DateValue[#1], RefSV[#1] - RefSV2[#1] - HostCorrection + TravCorrection,
　　　　 TrackLength[#1], TrackLength2[#1]} &, dMerge];

In[51]:= **diffdataGPS = FilterTrackLength[diffdataGPS, 780];**

42 common tracks out of 42 were of length greater than or equal to 780 seconds.

In[52]:= **ListPlot[diffdataGPS, PlotRange → All];**

(* HOST RECEIVER DATA - TRAVELLING RECEIVER DATA *)
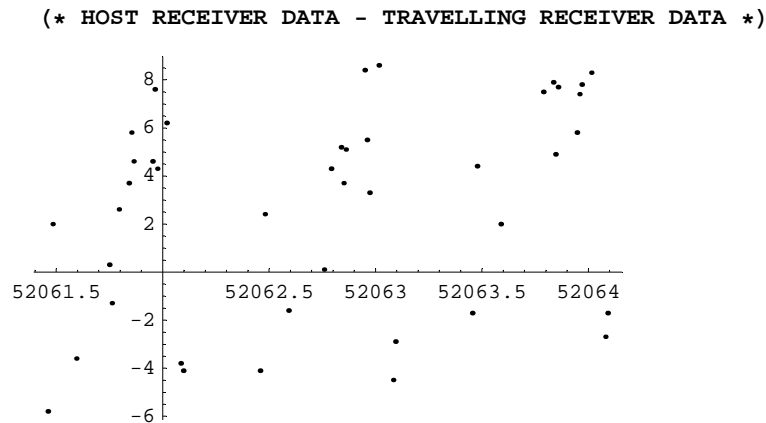
In[53]:= **<< Statistics`LinearRegression`**

In[54]:= **regress = Regress[diffdataGPS, {1, x}, x];**
rtable = ANOVATable /. regress;
ptable = ParameterTable /. regress;
MJDFirst = First[dMerge][[3]];
MJDLast = Last[dMerge][[3]];
MJDMiddle = MJDFirst + (MJDFirst - MJDLast) / 2;
intercept = ptable[[1, 1, 1]];
SEintercept = ptable[[1, 1, 2]];
slope = ptable[[1, 2, 1]];
SEslope = ptable[[1, 2, 2]];
rms = Sqrt[rtable[[1, 2, 3]]];
MeanOffset = intercept + slope * MJDMiddle;
Print["\!\(*
StyleBox[\"Summary\",\n\"Output\"]\)"];
Print[Length[dMerge], " common-view tracks were analysed between MJD ",
MJDFirst, " and MJD ", MJDLast];
Print["The mean offset (Host Rx - Travelling Rx) between the two receivers was ",
MeanOffset, " ns, with an RMS deviation of ", rms, " ns."];
Print["The slope of the line of best fit was ", slope * 1000,
" ps/day, with a standard error of ", SEslope * 1000, " ps/day."];

Summary

42 common-view tracks were analysed between MJD 52061 and MJD 52064

The mean offset (Host Rx - Travelling Rx) between the two receivers was
 -2.59027 ns, with an RMS deviation of 4.14716 ns.

The slope of the line of best fit was
 1614.48 ps/day, with a standard error of 760.725 ps/day.