# ■ Processing APMP_Cal data from VMI Vietnam

```
Off[General::spell1];

dataPath = "f:\\Trip 2\\VMI Vietnam\\";
```

■ Definitions

```
dataHost = ReadCCTF["host.txt"];
(*Host  reported values:*)
RepHostIntDly = 50;
  RepHostRefDly = 38;
 RepHostAntDly = 250;
RepHostDly = RepHostIntDly + RepHostAntDly - RepHostRefDly;

(*Host  Receiver internal settings:*)
RxHostIntDly = 50;
  RxHostRefDly = 23;
 RxHostAntDly = 250;
RxHostDly = RxHostIntDly + RxHostAntDly - RxHostRefDly;
HostCorrection = RepHostDly - RxHostDly;

dataTrav = ReadCCTF["trav.txt"];
(*Host   reported values:*)
RepTravIntDly = 68;
  RepTravRefDly = 61;
 RepTravAntDly = 234.5;
RepTravDly = RepTravIntDly + RepTravAntDly - RepTravRefDly;

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

> Read 742 tracks from f:\Trip 2\VMI Vietnam\host.txt

> Read 709 tracks from f:\Trip 2\VMI Vietnam\trav.txt
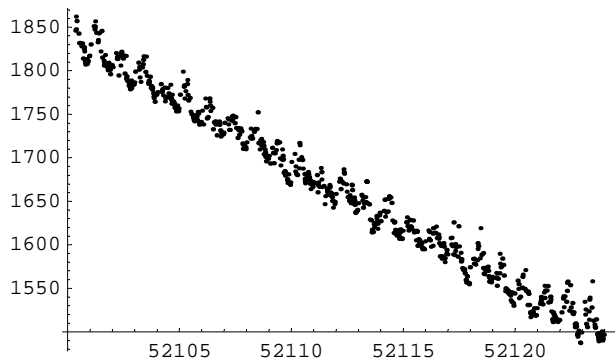
```
<< Graphics`Graphics`
```

```
ListPlot[MakeXY[Map[DateValue, dataTrav], Map[RefGPS, dataTrav]],
  PlotRange → All];
```

(* RAW DATA FROM TRAVELLING RECEIVER *)
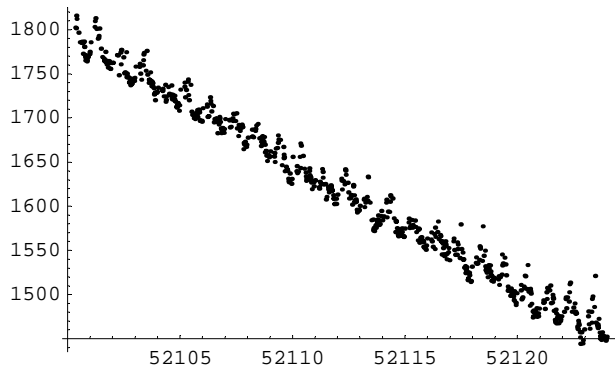

```
ListPlot[MakeXY[Map[DateValue, dataHost], Map[RefGPS, dataHost]],
  PlotRange → All];
```

(* RAW DATA FROM VMI HOST *)


```
dMerge = MergeCCTF[dataHost, dataTrav];
```

> First 742 tracks, second 709 tracks, matching 657 tracks

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

```
diffdataGPS = FilterTrackLength[diffdataGPS, 780];
```

629 common tracks out of 657 were of length greater than or equal to 780 seconds.

```
ListPlot[diffdataGPS, PlotRange → All];
```

```
(* HOST RECEIVER DATA - TRAVELLING RECEIVER DATA *)
```
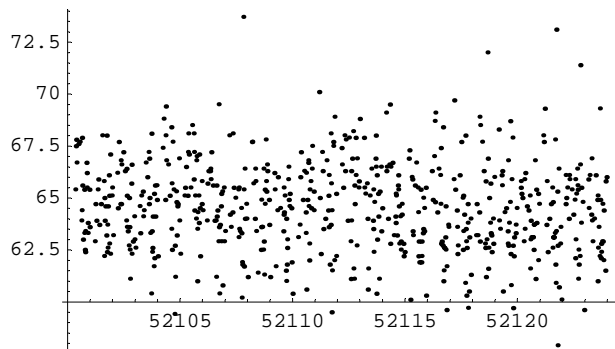


```
<< Statistics`LinearRegression`
```

```
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

657 common-view tracks were analysed between MJD 52100 and MJD 52123

The mean offset (Host Rx - Travelling Rx) between the two receivers was
 65.3529 ns, with an RMS deviation of 2.14309  ns.

The slope of the line of best fit was
 -33.3683 ps/day, with a standard error of 12.3362 ps/day.
```