```
Button TH始程序",
 img =
  Show[Image[Table[0, {240}, {320}]], Graphics[{Red, Line[{{200, 0}, {200, 240}}]}]];
 r = 0.6; k = 43.56; di = 0.1;
 S = 130; \Theta m = 50; \Theta M = 60;
 x = 10; y = 50; hm = 0.4; hM = 0.6;
 \thetadeg = 1;
 \thetadegM = 1;
 \alpha = 1;
 h = 0.1;
 str = 0;
 fileWrite = FileNameJoin[{NotebookDirectory[], "tmp.txt"}];
 fileRead = FileNameJoin[{NotebookDirectory[], "tmp.txt"}];
 dateStart = "2012,7,30,20,45,15";
 dateStop = "2012,7,31,21,32,12";
 DateList[{dateStart, {"Year", "Month", "Day", "Hour", "Minute", "Second"}}];
 ups = 1;
 zuobiaoL0 = {100, 120}; zuobiaoL = {101, 121};
 zuobiaoR0 = {200, 100}; zuobiaoR = {201, 101};
 zuobiaoLR0 = {{100, 120}, {200, 100}};
 buttonsize1 = {120, 25};
 buttonsize2 = {248, 25};
 dynamicimg = 0;
 ppL = {1, 1}; ppR = {121, 1};
 ppL0 = {0, 0}; ppR0 = {120, 0};
 u = uu = Table[0, {50}];
 panmian =
 frapan = Framed@Show[panmian, ImageSize → 240];
 CreateWindow DialogNotebook
   Manipulate [
    (*实时视频 *)
    Dynamic@Column[{
       paishe,
       Row[{StringForm["L:(`1`,`2`)", NumberForm[zuobiaoL[[1]], {3, 0}],
          NumberForm[zuobiaoL[[2]], {3, 0}]],
         StringForm["R:(`1`,`2`)", NumberForm[zuobiaoR[[1]], {3, 0}],
          NumberForm[zuobiaoR[[2]], {3, 0}]]}, Spacer[20]]
      }, Center],
    (*=======*)
    Item [Row [{ Null, Style ["实时地倾斜及地震监测与预警系统 ", 20], Null},
      Spacer[265]
                      , ControlPlacement → Top,
    Delimiter,
    (*========*)
    (*控制按钮 *)
    Item[Dynamic[Framed[Grid[{
```

```
{Button[Style["编译&启动CCD"], bianCCD, ImageSize → buttonsize1],
Button["调整仪器", tiaozheng, Enabled -> (getflag["bianyi"] == 1),
  ImageSize → buttonsize1], Button["比例系数测量", bilixishu,
 Enabled -> (getflag["bianyi"] == 1), ImageSize → buttonsize1],
Button["参数设置", canshu, Enabled →
   (getflag["bianyi"] == 1 && getflag["jilu"] == 4), ImageSize → buttonsize1]},
{Which [getflag["paishe"] == 2,
 Button["开始拍摄", changeflag["paishe", 1], Enabled →
    (getflag["bianyi"] == 1), ImageSize → buttonsize1],
 getflag["paishe"] == 1,
 Button["停止拍摄",
   If[getflag["jiankong"] == 1 || getflag["jiankong"] == 2,
    MessageDialog["正在监控, 不能停止拍摄 \n若停止, 可先停止监控"],
    changeflag["paishe", 2]
   , Enabled -> (getflag["bianyi"] == 1), ImageSize → buttonsize1]],
Button["获取初始照片 ", chushi, Enabled →
   (getflag["bianyi"] == 1 && getflag["jiankong"] == 3), ImageSize → buttonsize1],
Which
 getflag["jiankong"] == 3 || getflag["jiankong"] == 2,
 Button[Style["开始监控"], changeflag["jiankong", 1], Enabled →
    (getflag["bianyi"] == 1), ImageSize → buttonsize1],
 getflag["jiankong"] == 1,
 Button[Style["暂停监控"],
   If[getflag["jilu"] == 1,
    MessageDialog["正在记录,不能暂停监控\n若暂停,可停止记录"],
    changeflag["jiankong", 2]],
  Enabled -> (getflag["bianyi"] == 1), ImageSize → buttonsize1]],
Button[Style["停止监控"],
  If[getflag["jilu"] == 1,
  MessageDialog["正在记录,不能暂停监控\n若暂停,可停止记录"],
   changeflag["jiankong", 3]; u = uu = Table[0, {50}]
  , Enabled -> (getflag["bianyi"] == 1), ImageSize → buttonsize1]},
{Which [getflag["jilu"] == 1, Button ["暂停记录", changeflag["jilu", 2],
  Enabled -> (getflag["bianyi"] == 1), ImageSize → buttonsize2],
 True,
 Button["开始记录",
  If[getflag["jilu"] == 4, MessageDialog["尚未设置"],
    Which [getflag["jiankong"] # 1,
     MessageDialog["没有监控, 不能记录"],
     AbsoluteTime[DateList[{dateStart,
          {"Year", "Month", "Day", "Hour", "Minute", "Second"}}]]
      > AbsoluteTime[], changeflag["jilu", 3]; MessageDialog["时间未到"],
     changeflag["jilu", 1] ]],
  Enabled -> (getflag["bianyi"] == 1) , ImageSize → buttonsize2] ]
 , SpanFromLeft,
Button["数据储存设置",
 Which
   getflag["jilu"] == 4, chucunSet,
  getflag["jilu"] == 3,
```

```
CreateWindow DialogNotebook
          Panel
           Column[{
             "已设置成功",
             Null,
             "数据储存文件:\n "<> fileWrite,
             "记录起始时间: "<>
              DateString@DateList[{dateStart,
                 {"Year", "Month", "Day", "Hour", "Minute", "Second"}}],
             "记录终止时间: "<> DateString@DateList[{dateStop,
                 {"Year", "Month", "Day", "Hour", "Minute", "Second"}}],
             "记录频率: " <> "每 " <> ToString[NumberForm[ups, 3]] <> " 秒记录一次 ",
             Null,
             Null,
             Row[{Button["确定", DialogReturn[], ImageSize → {100, 30}],
               Button["重新设置",
                Close[str];
                DeleteFile[fileWrite];
                chucunSet;
                DialogReturn[], ImageSize → {100, 30}]}, Spacer[40]]
            }]
           , ImageSize \rightarrow {400, 250}]
        ],
        getflag["jilu"] == 1 || getflag["jilu"] == 2,
        MessageDialog[
         Column[{
           "已进入记录时间段 , 无法重新设置 \n若想重新设置 , 请停止记录 ",
           "当前设置:",
           Null,
           "数据储存文件:\n " <> fileWrite,
           "记录起始时间: "<> DateString@DateList[{dateStart,
               {"Year", "Month", "Day", "Hour", "Minute", "Second"}}],
           "记录终止时间: " <> DateString@DateList[{dateStop,
               {"Year", "Month", "Day", "Hour", "Minute", "Second"}}],
           "记录频率: "<> "每 "<> ToString[NumberForm[ups, 3]] <> " 秒记录一次"
          }]]],
       Enabled -> (getflag["bianyi"] == 1) , ImageSize → buttonsize2], SpanFromLeft},
     {Button["停止记录",
       If[getflag["jilu"] # 4,
        changeflag["jilu", 4]; Close[str]; n = 0; MessageDialog["记录已停止"],
        MessageDialog["记录已停止,尚未设置"]],
       Enabled -> (getflag["bianyi"] == 1), ImageSize → buttonsize2], SpanFromLeft,
      Button["数据处理分析", shujuchuli, Enabled -> (getflag["bianyi"] == 1),
       ImageSize → buttonsize2], SpanFromLeft}
    }]]], ControlPlacement → Right],
(*程序数据状态 *)
Item[
Dynamic@Grid[{
    {Style["程序运行状态:",16,Underlined],Style["数据储存状态:",15,Underlined]},
```

```
{Null, Null},
         {Style [Which ]
            getflag["bianyi"] == 1, "坐标提取函数已编译 ",
            getflag["bianyi"] == 2, "坐标提取函数还未编译 "]
           , 14, Italic],
          If[getflag["jilu"] # 4,
           Style["已设置:"<>Last[FileNameSplit[fileWrite]], 14, Italic],
           Style["尚未设置", 14, Italic]]
         {Style[StringForm["比例系数 k = `1`px/cm", NumberForm[k, 5]], 14, Italic],
          Which
           getflag["jiankong"] # 1 && getflag["jilu"] # 4,
           Style["没有监控, 不能记录", 14, Italic],
           getflag["jilu"] == 1,
           Style["正在记录... 记录频率: "<> ToString[ups] <> "秒记录一次", 14, Italic],
           getflag["jilu"] == 2, Style["记录处于暂停状态 ", 14, Italic],
           getflag["jilu"] == 3, Dynamic[Refresh[
             If [Round[AbsoluteTime[DateList[{dateStart,
                     {"Year", "Month", "Day", "Hour", "Minute", "Second"}}]]
                  - AbsoluteTime[]] ≥ 0,
              Style["时间未到, 还剩" <> ToString[Round[AbsoluteTime[DateList[{dateStart,
                        {"Year", "Month", "Day", "Hour", "Minute", "Second"}}]]
                    - AbsoluteTime[]]] <> "秒", 14, Italic],
              changeflag["jilu", 1]]
              , UpdateInterval → 1], TrackedSymbols :> {} ],
           getflag["jilu"] == 4, ""] },
         {Style [Which ]
            getflag["paishe"] == 1 && getflag["jiankong"] == 1, "正在拍摄 & 正在监控",
            getflag["paishe"] == 1 && getflag["jiankong"] == 2, "正在拍摄 & 监控已暂停",
            getflag["paishe"] == 1 && getflag["jiankong"] == 3, "正在拍摄 & 监控已停止",
            getflag["paishe"] == 2, "还未拍摄"], 14, Italic],
          Dynamic[If[getflag["jilu"] == 1,
            Dynamic Refresh [
              dataWrite[str, getflag["mode"], dateStart, dateStop, \alpha, \thetadeg, h];
              n++;
              Style[StringForm["已记录: `1`", n], 14, Italic],
              UpdateInterval → ups], TrackedSymbols :> {}], ""]]}},
        \texttt{ItemSize} \rightarrow \{\{22.35, 22.35\}\}, \texttt{Alignment} \rightarrow \texttt{Left}, \texttt{Frame} \rightarrow \{\texttt{All}, \texttt{False}\}
       ], ControlPlacement → Right],
Delimiter,
    (*时间、参数状态条 *)
    Item[Row[{
       Dynamic[Which[
          getflag["mode"] == 1, Style["L : .", Red],
          getflag["mode"] == 2, Style[". : R", Red],
          getflag["mode"] == 3, Style["L : R", Red]
       Dynamic@StringForm[
          "di='1', S='2'cm, \Thetam='3'', \ThetaM='4'', x='5'cm, y='6'cm, hm='7'cm, hM='8'cm",
          NumberForm [di, 3], NumberForm [S, 4], NumberForm [\theta m, 3], NumberForm [\theta M, 3],
          NumberForm[x, 4], NumberForm[y, 4], NumberForm[hm, 4], NumberForm[hM, 4]]
```

```
}, "-"], ControlPlacement → Right],
(*仪表*)
    Item[
    Panel Grid [{
        {Dynamic@If[getflag["jiankong"] == 1 && getflag["mode"] \neq 2,
           proCompass[zuobiaoL0, zuobiaoL, k, S, 0m, 0M],
           Dynamic[
            proCompass[zuobiaoL0, zuobiaoL, k, S, \thetam, \thetaM], TrackedSymbols -> {}]],
         Dynamic@If[getflag["jiankong"] == 1 && getflag["mode"] # 2,
           Dynamic[Refresh[proMeter1[zuobiaoL0, zuobiaoL, k, S, \thetam, \thetaM]
             , UpdateInterval → 0.5 ], TrackedSymbols -> {}],
           Dynamic[proMeter1[zuobiaoL0, zuobiaoL, k, S, \theta m, \theta M], TrackedSymbols -> {}]],
          If[getflag["jiankong"] == 1 && (getflag["mode"] == 2 || getflag["mode"] == 3),
           Dynamic[Refresh[
             proMeter2[zuobiaoR0, zuobiaoR, k, x, y, hm, hM]
             , UpdateInterval → 0.5 ],
            TrackedSymbols -> {}],
           Dynamic[
            proMeter2[zuobiaoR0, zuobiaoR, k, x, y, hm, hM], TrackedSymbols -> {}]
          ]},
        {Dynamic@Style["当前倾斜方向 : " <> ToString[NumberForm[
              If [90 < (2\pi - \alpha + \pi / 2) * 180 / \pi <= 360,
               (2\pi - \alpha + \pi / 2) * 180 / \pi, (2\pi - \alpha + \pi / 2) * 180 / \pi - 360]
              , 4]] <> "度", 13],
         Dynamic@Style["当前倾斜角度:"<>ToString[NumberForm[θdeg, 3]]<>"分", 13],
         Dynamic@Style["当前偏移距离 : " <> ToString[
             NumberForm[proMeterN[zuobiaoR0, zuobiaoR, k, x, y], 3]] <> "厘米", 13]
       }], Background → Gray],
     ControlPlacement → Bottom],
    (*程序初始化*)
Initialization ⇒ (a;),
    (*整体属性*)
    AppearanceElements → None
    ], WindowTitle -> "实时地倾斜及地震监测与预警系统 ", WindowSize → All],
 ImageSize → {200, 50}, Method -> "Queued"
```