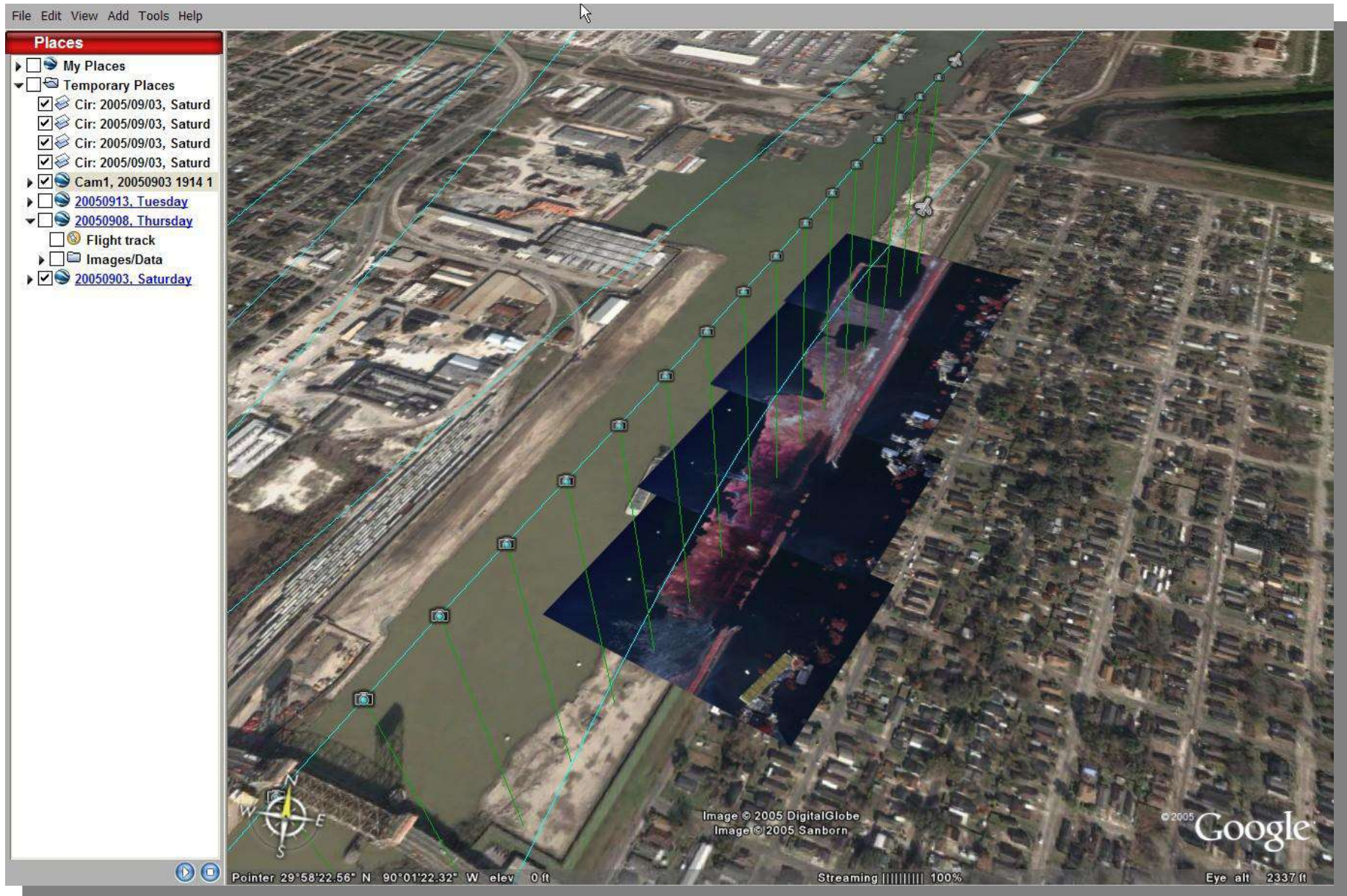
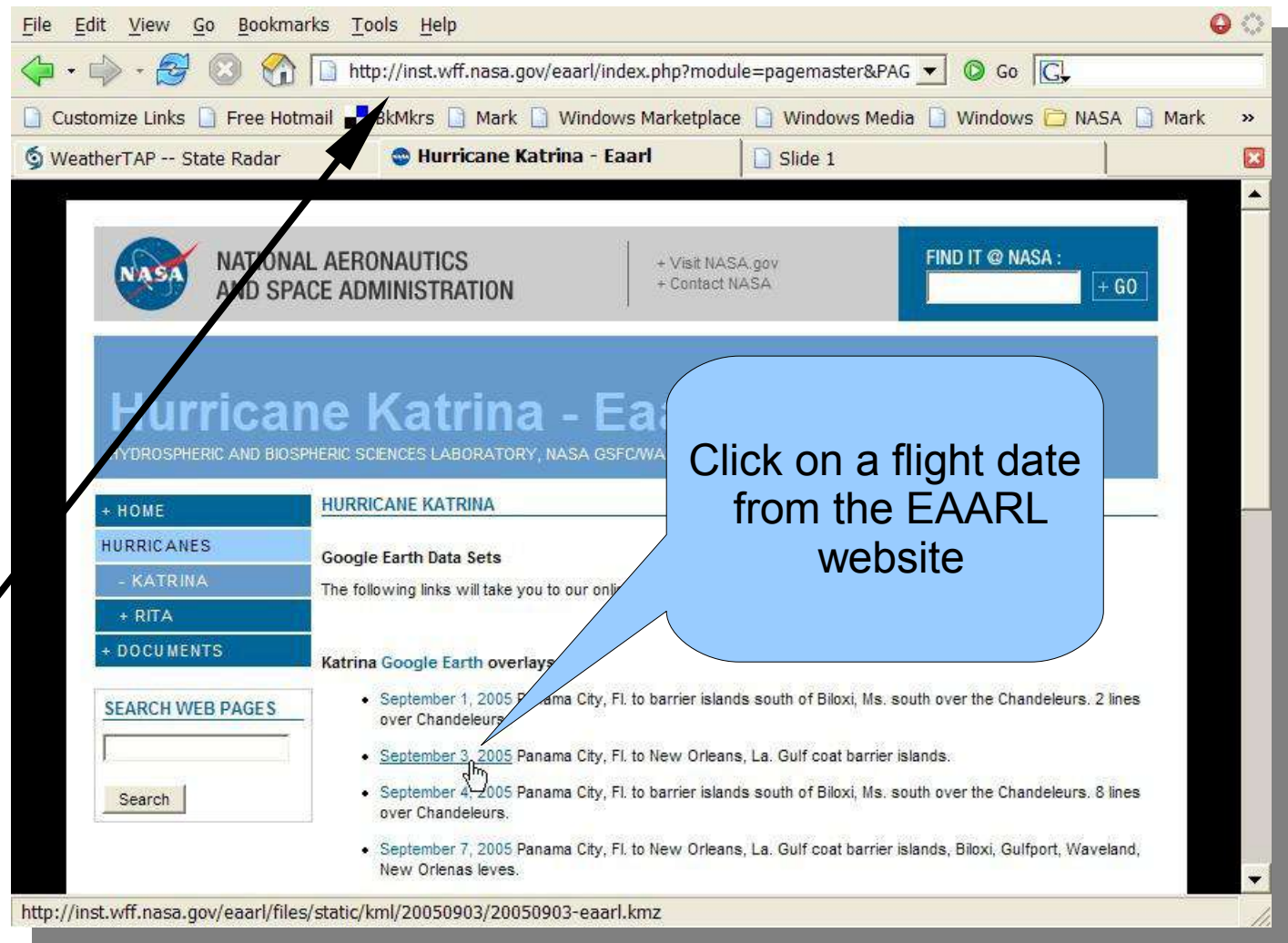


NASA EAARL & Google Earth

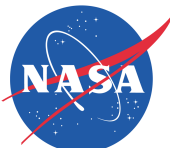


Loading EAARL Data Sets

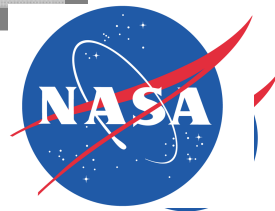
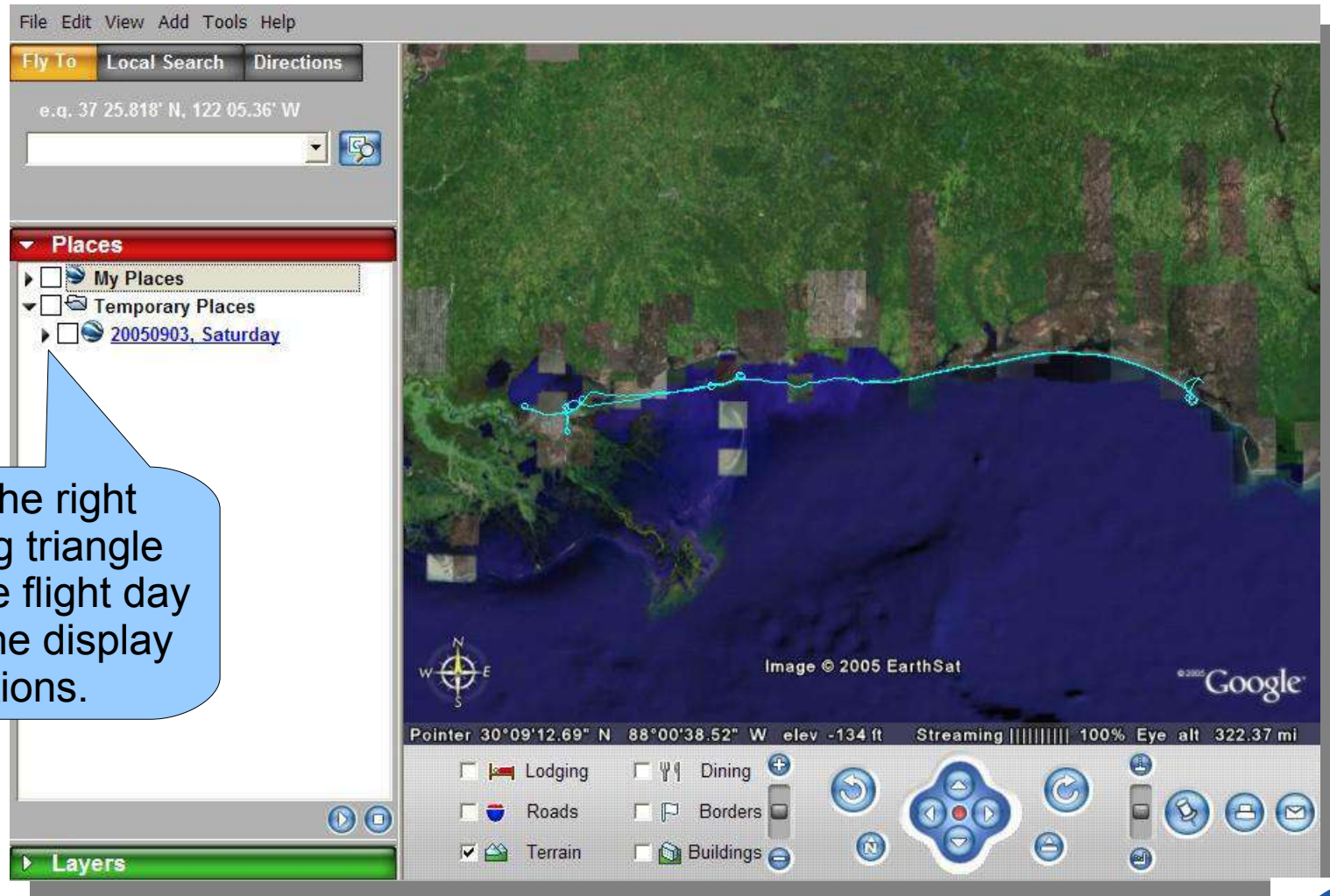
- EAARL datasets are loaded via your web browser.
- Google Earth will be automatically started when you click on an EAARL dataset in the Google Earth format.



Eaarl Web Site: <http://inst.wff.nasa.gov/eaarl>



Loading an EAARL Flight

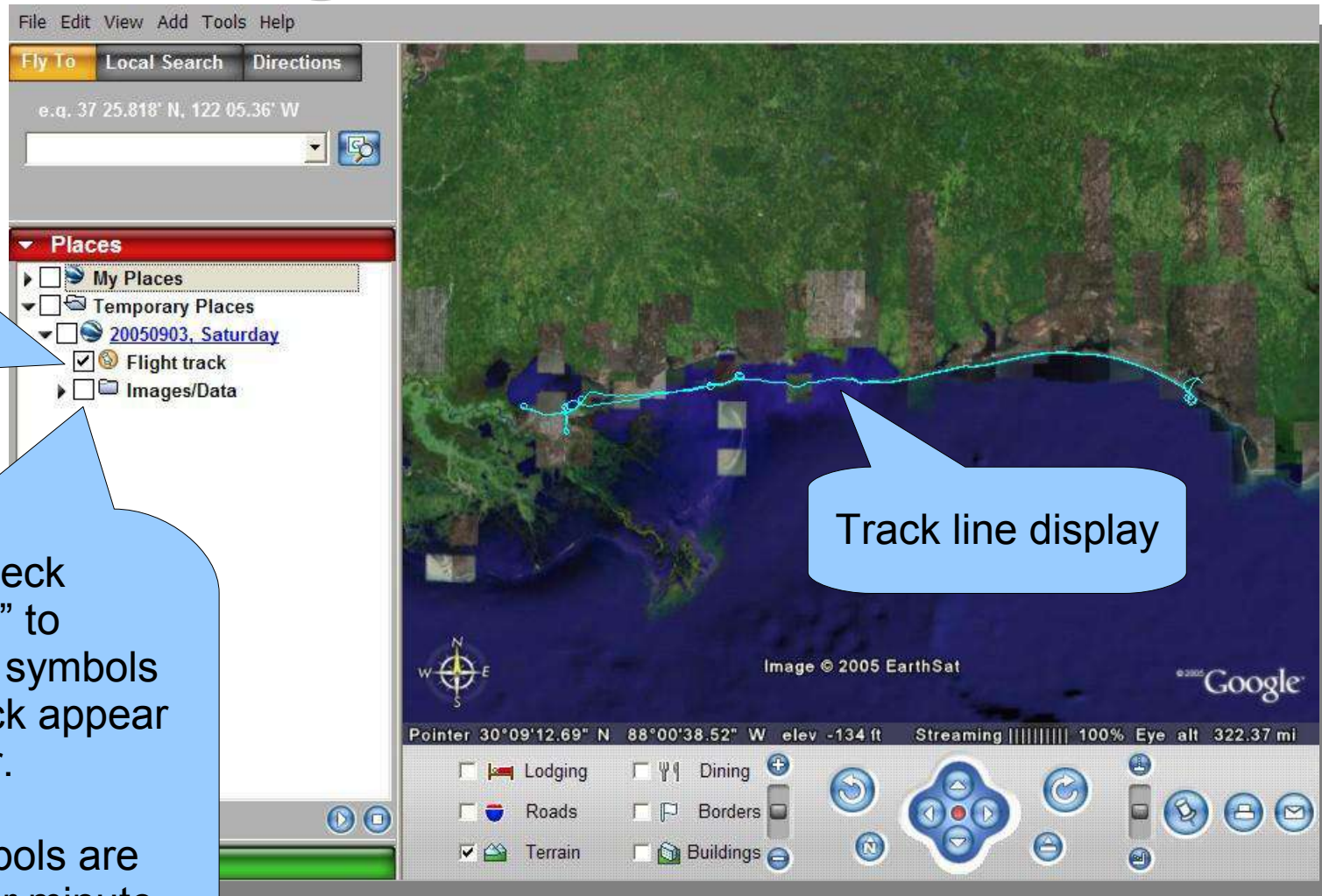


Displaying and Hiding EAARL Flight Data

You can check or uncheck this to make the flight track appear or disappear.

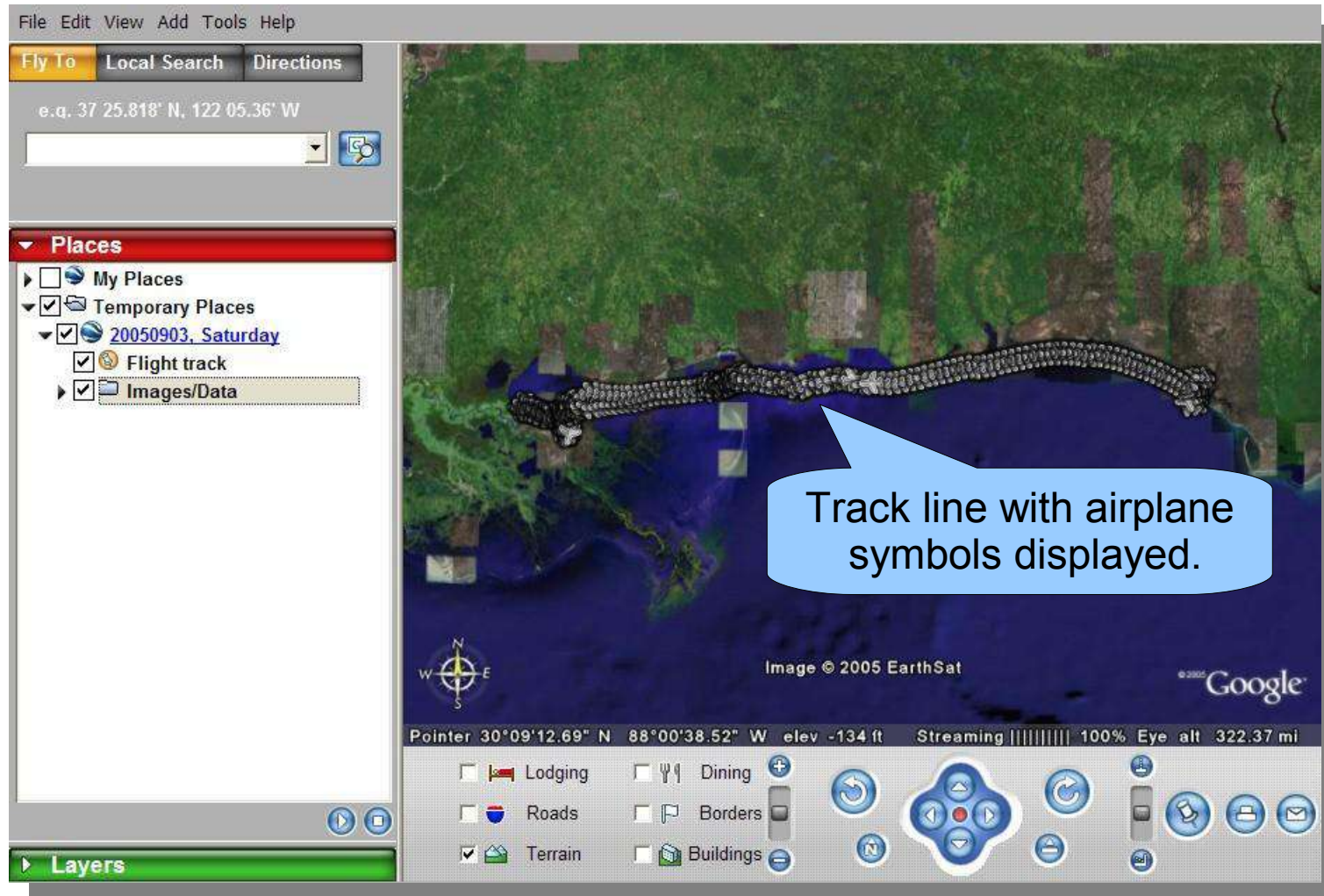
Check or uncheck "Images/Data" to make the airplane symbols along the flight track appear or disappear.

The airplane symbols are displayed once per minute of flight.

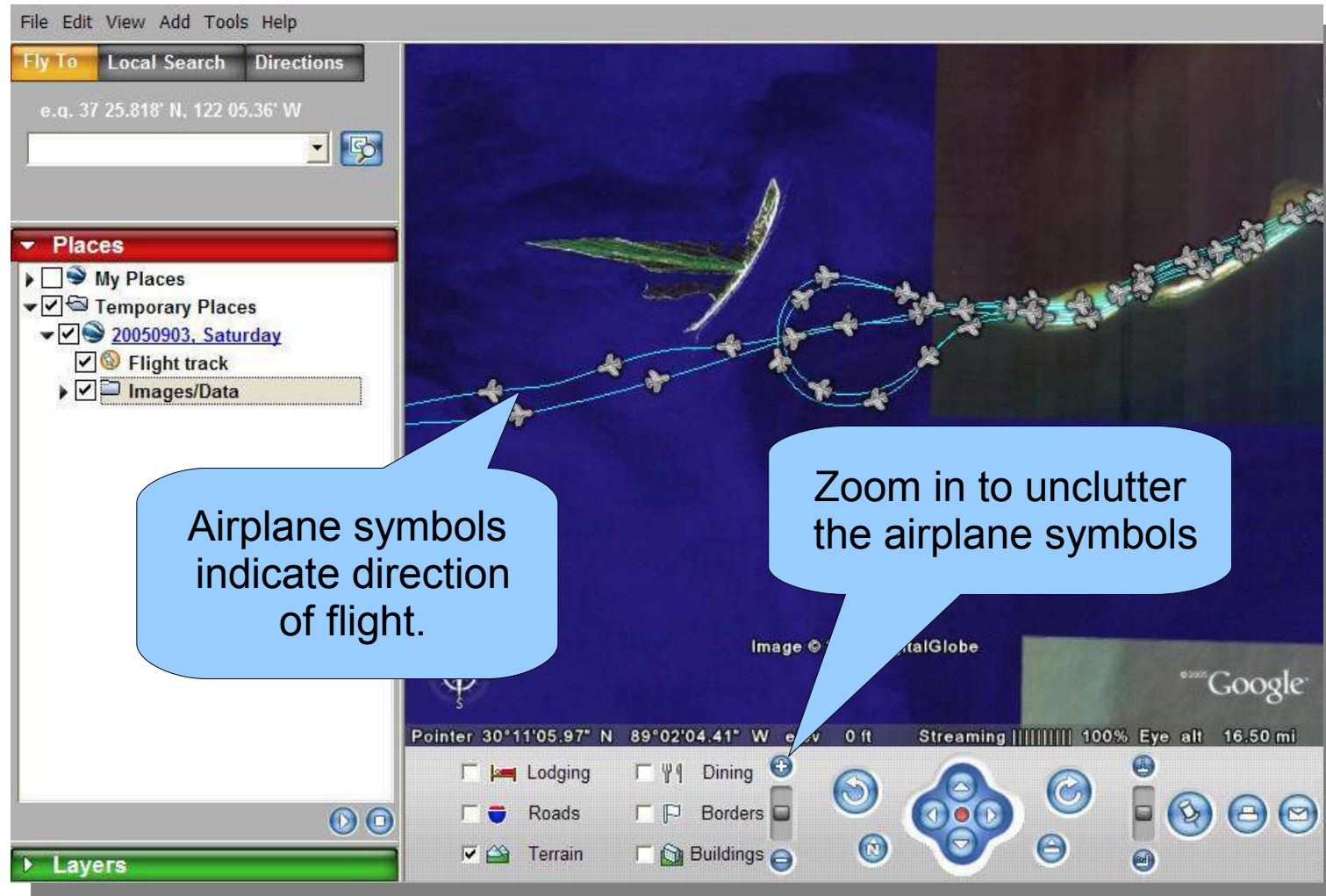


EAARL Track Minute Markers

- The airplane symbols link to more information including high and low resolution photographs taken once per second.



Examining EAARL Flight Track



EAARL Minute Markers

- Flight Information
 - Time, date
 - Altitude
 - Ground Speed
 - Ground Track
- Photograph info
 - Resolution
 - Ground dimensions
- Links to intervening photographs

The screenshot displays the EAARL web application interface. On the left, a 'Places' list shows flight data for various time points, including time, altitude, ground speed, and ground track. The main map area shows a satellite view with a flight path and a pop-up window displaying detailed flight information for a specific time point. A blue callout bubble points to an airplane icon on the map, stating: 'Clicking on an airplane icon brings up flight information.'

Places

Time	Altitude (m)	Ground Speed (kts)	Ground Track
15:49:00	298.5033	126.7	283.5
15:50:00	279.8425	128.4	255.6
15:51:00	294.3794	125.1	291.3
15:52:00	312.0609	128.0	238.7
15:53:00	290.9984	138.9	224.6
15:54:00	276.3247	127.8	252.0
15:55:00	268.0534	119.3	193.3
15:56:00	281.6647	117.1	286.4

Flight Dynamics

- WGS84 Elevation: 298.5033m, Gs: 126.7Kts
- Track: 283.50
- **Low Res RGB**
- Cross Track Width: 300.7m 85cm/pixel
- Along Track Height: 187.9m 78cm/pixel
- [\(350x280\) RGB](#)
- **Hi Res CIR**
- Cross Track Width: 350.1m 22cm/pixel
- Along Track Height: 217.5m 18cm/pixel
- [\(1600x1200\) CIR](#)

Expand: [+60 | -60] Info: <http://inst.wff.nasa.gov/eaarl>

Directions: [To here](#) - [From here](#)

Pointer 30°18'58.91" N 89°13'14.09" W elev 1 ft Streaming 100% Eye alt 51258 ft

Layers: Lodging, Dining, Roads, Borders, Terrain, Buildings

Minute Marker Photo Links

- Minute Markers provide basic flight information and links to photos taken “on the minute.”
- They also provide links to 60 seconds of photos ahead and behind the aircraft icon.

The screenshot displays a flight tracking application interface. On the left, a list of minute markers is shown, each with a checkbox and a small aircraft icon. The markers include timestamps and coordinates. A blue callout bubble points to one of the markers, stating: "Click to view high or low resolution photography at this minute marker".

The main map area shows a satellite view of a coastal region. A blue line represents the flight path, with several aircraft icons. A yellow square highlights a specific marker on the path. A blue callout bubble points to this marker, stating: "Links to 60 photos ahead and 60 photos behind the icon".

A detailed information popup is visible over the map, titled "Thursday, 20050908 15:49:00". It contains the following information:

- Flight Dynamics**
 - WGS84 Elevation: 298.5033m, Gs: 126.7Kts
 - Track: 283.50
- Low Res RGB**
 - Cross Track Width: 300.7m 85cm/pixel
 - Along Track Height: 187.9m 78cm/pixel
 - [\(350x280\) RGB](#)
- Hi Res CIR**
 - Cross Track Width: 350.1m 22cm/pixel
 - Along Track Height: 217.5m 18cm/pixel
 - [\(1600x1200\) CIR](#)

At the bottom of the popup, there are links for "Expand: [+60 | -60]" and "Info: <http://inst.wff.nasa.gov/eaarl>". Below the popup, there are links for "Directions: [To here](#) - [From here](#)".

The application interface includes a menu bar (File, Edit, View, Add, Tools, Help), a toolbar with buttons for "Fly To", "Local Search", and "Directions", and a status bar at the bottom showing "elev 1 ft", "Streaming", "100%", "Eye", and "alt 51258 ft".

Loading One Second Photo Markers

- Clicking on the “+60” or “-60” loads links to the photos between the minute markers

The screenshot displays a web-based interface for viewing flight data. On the left, a 'Places' list shows time-stamped data points with aircraft icons and checkboxes. A central popup window provides detailed flight information for a specific time. A blue callout bubble points to the '+60' and '-60' expand options in the popup, explaining their function.

Places List:

- 19:07:00 275.9697m, 119.3kts Track:161.1
- 19:08:00 273.6391m, 121.5kts Track:164.5
- 19:09:00 263.4143m, 121.8kts Track:177.3
- 19:10:00 285.9220m, 116.2kts Track:170.8
- 19:11:00 270.9416m, 115.6kts Track:160.1
- 19:12:00 262.7986m, 115.6kts Track:160.1

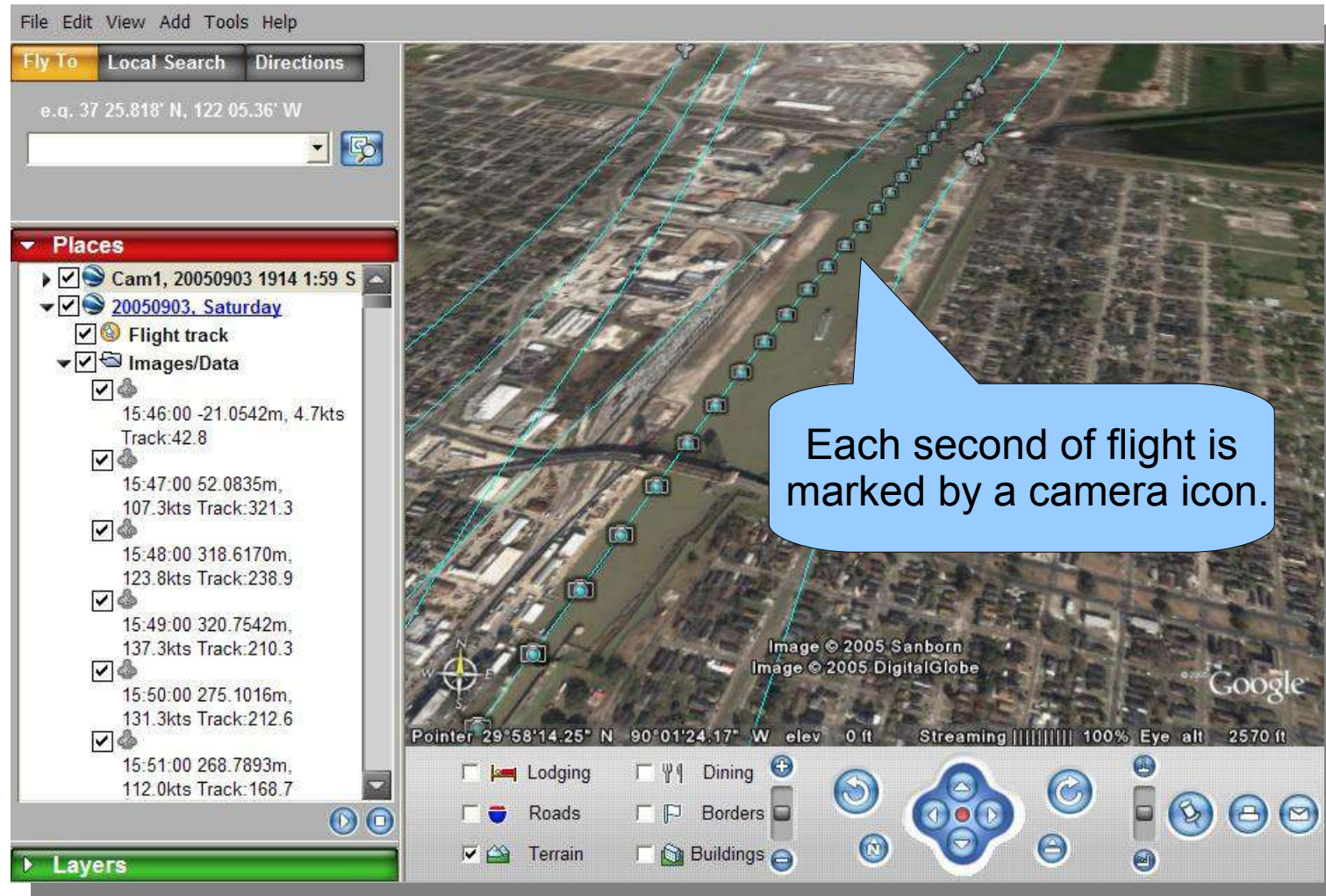
Flight Data Popup (Saturday, 20050903 19:14:00):

- Flight Dynamics**
 - WGS84 Elevation:265.7523m, Gs:122.7Kts
 - Track: 17.84
- Low Res RGB**
 - Cross Track Width:259.1m 74cm/pixel
 - Along Track Height:168.3m 70cm/pixel
 - (350x280) RGB
- Hi Res CIR**
 - Cross Track Width:301.7m 19cm/pixel
 - Along Track Height:194.6m 16cm/pixel
 - (1600x1200) CIR
- Expand: [+60](#) | [-60](#) Info: <http://inst.wff.nasa.gov/eaarl>
- Direction: [here](#) - [From here](#)

Callout: Clicking here (-60) brings up links to the 60 photos behind the aircraft icon

One Second Photo Markers

- Camera icons mark each second of flight and are hyperlinks to the photography for that second and additional flight data.



Selecting Photos

The screenshot displays a flight tracking application. On the left, a 'Places' sidebar lists data for 'Cam1, 20050903 1914 1:59 S'. Under the 'Images/Data' section, several photo entries are listed with their timestamps, altitudes, and speeds. A blue callout bubble points to a camera icon on the map, indicating that hovering the mouse over it highlights the photo.

File Edit View Add Tools Help

Fly To Local Search Directions

e.g. 37 25.818° N, 122 05.36° W

Places

- ✓ ☒ Cam1, 20050903 1914 1:59 S
- ✓ ☒ 20050903, Saturday
 - ✓ ☒ Flight track
 - ✓ ☒ Images/Data
 - ✓ ☒ 15:46:00 -21.0542m, 4.7kts Track:42.8
 - ✓ ☒ 15:47:00 52.0835m, 107.3kts Track:321.3
 - ✓ ☒ 15:48:00 318.6170m, 123.8kts Track:238.9
 - ✓ ☒ 15:49:00 320.7542m, 137.3kts Track:210.3
 - ✓ ☒ 15:50:00 275.1016m, 131.3kts Track:212.6
 - ✓ ☒ 15:51:00 268.7893m, 112.0kts Track:168.7

Layers

Pointer 29°58'15.84" N 90°01'24.31" W elev. 0 ft Streaming ||||| 100% Eye all 4150 ft

Lodging Dining Roads Borders Terrain Buildings

Placing your mouse over a camera icon highlights it.

Selecting Photography for Display

- The seconds flight dynamics links show:
 - Seconds of the week (sow)
 - Inertial:
 - Heading
 - Pitch
 - Roll

The screenshot displays a flight data visualization application. On the left, a 'Places' list shows flight events with timestamps, altitudes, and speeds. A 'Layers' panel at the bottom left allows toggling map features like 'Lodging', 'Roads', 'Terrain', 'Dining', 'Borders', and 'Buildings'. The main map area shows a satellite view with a flight path. A pop-up window provides detailed data for a selected event on Saturday, 2005/09/03 at 19:13:49.83629. This window includes 'Flight Dynamics' (GPS Elevation, Ground Speed, Heading, Pitch, Roll), 'RGB images' (Cross Track, Along Track, and a link to a 350x280 RGB image), and 'CIR images' (Cross Track Width, Along Track Length, and a link to a 1600x1200 CIR image). A blue callout bubble points to the CIR image link, stating: 'Clicking here will load a high resolution color Infrared photo'.

File Edit View Add Tools Help

Fly To Local Search Directions

e.g. 37 25.818° N, 122 05.36° W

Places

- 19:13:38, 262.72m, 119.8Kts Track:15.5
- ☒ 19:13:39, 263.15m, 119.4Kts Track:15.3
- ☒ 19:13:40, 263.56m, 119.4Kts Track:15.2
- ☒ 19:13:41, 264.19m, 119.3Kts Track:15.3
- ☒ 19:13:42, 264.63m, 119.1Kts Track:15.5
- ☒ 19:13:43, 264.58m, 118.9Kts Track:16.2
- ☒ 19:13:44, 264.49m, 118.8Kts Track:17.2
- ☒ 19:13:45, 265.19m, 118.7Kts Track:18.3

Layers

Pointer 29°58'14.25" N 90°01'24.17" W elev. 0 ft Streaming 100% Eye alt 4150 ft

Flight Dynamics

- GPS Elevation (WGS84/ITRF00):269.24m
- Gs:118.6Kts, Track: 18.8
- Sow: 587642 Heading: 22.93° Pitch:0.35° Roll:-3.95°

RGB images

- Cross Track:259.1m 74cm/pixel
- Along Track:168.3m 70cm/pixel
- [\(350x280\) RGB](#)

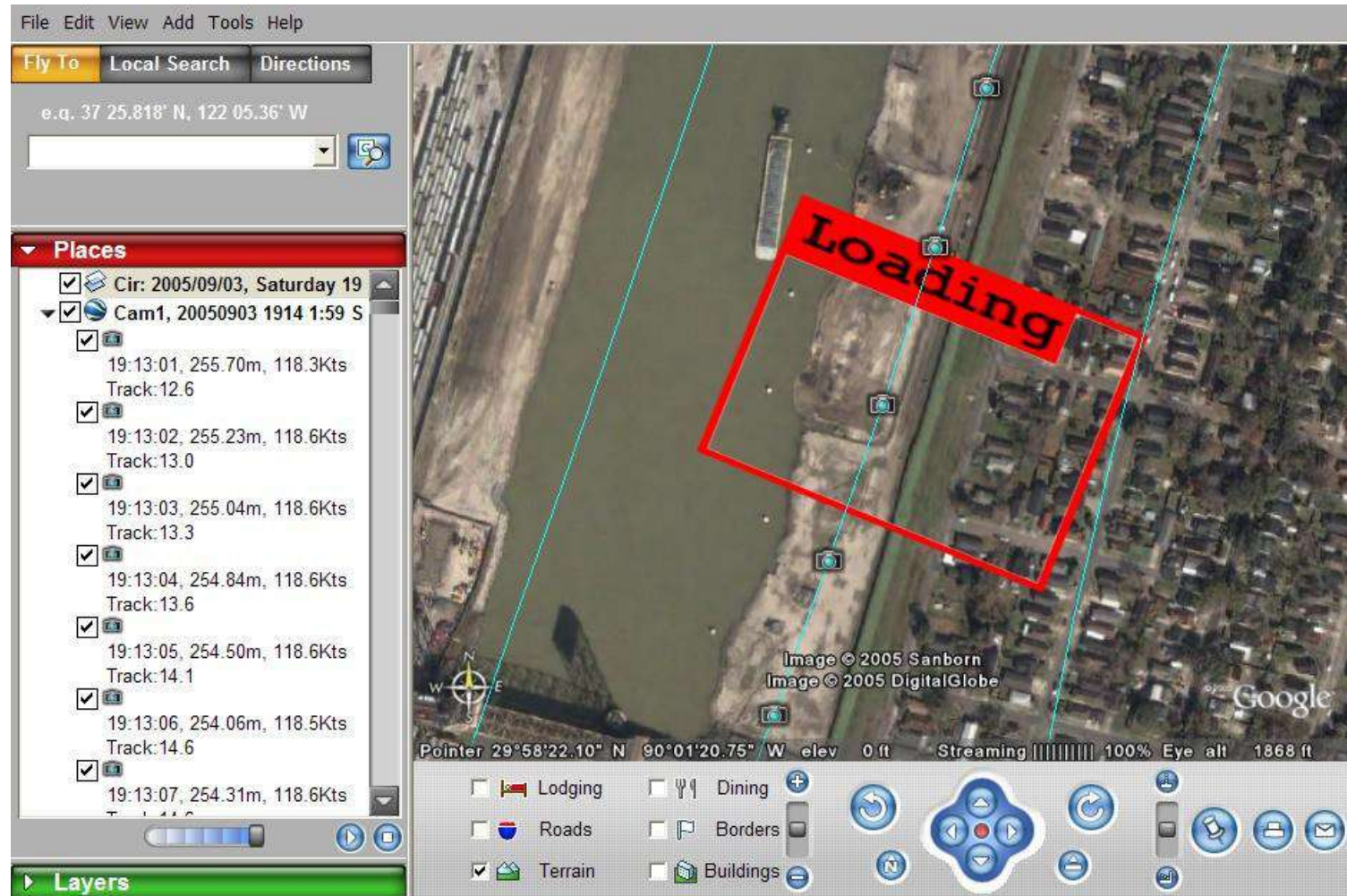
CIR images

- Cross Track Width:301.7m
- Along Track Length:194
- [\(1600x1200\) CIR](#)

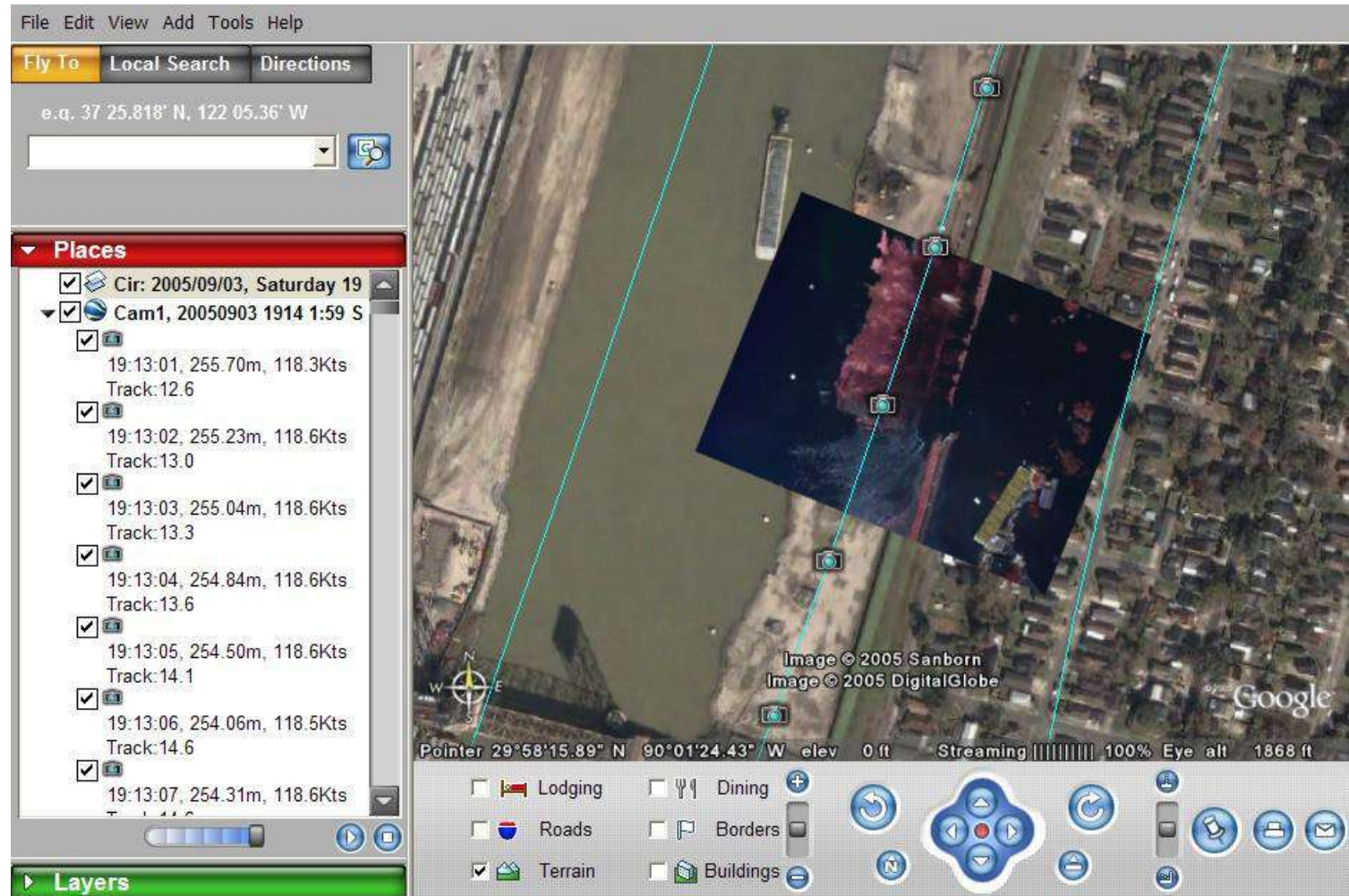
Clicking here will load a high resolution color Infrared photo

Image Loading....

- When an image is loading you should see a red indicator graphic

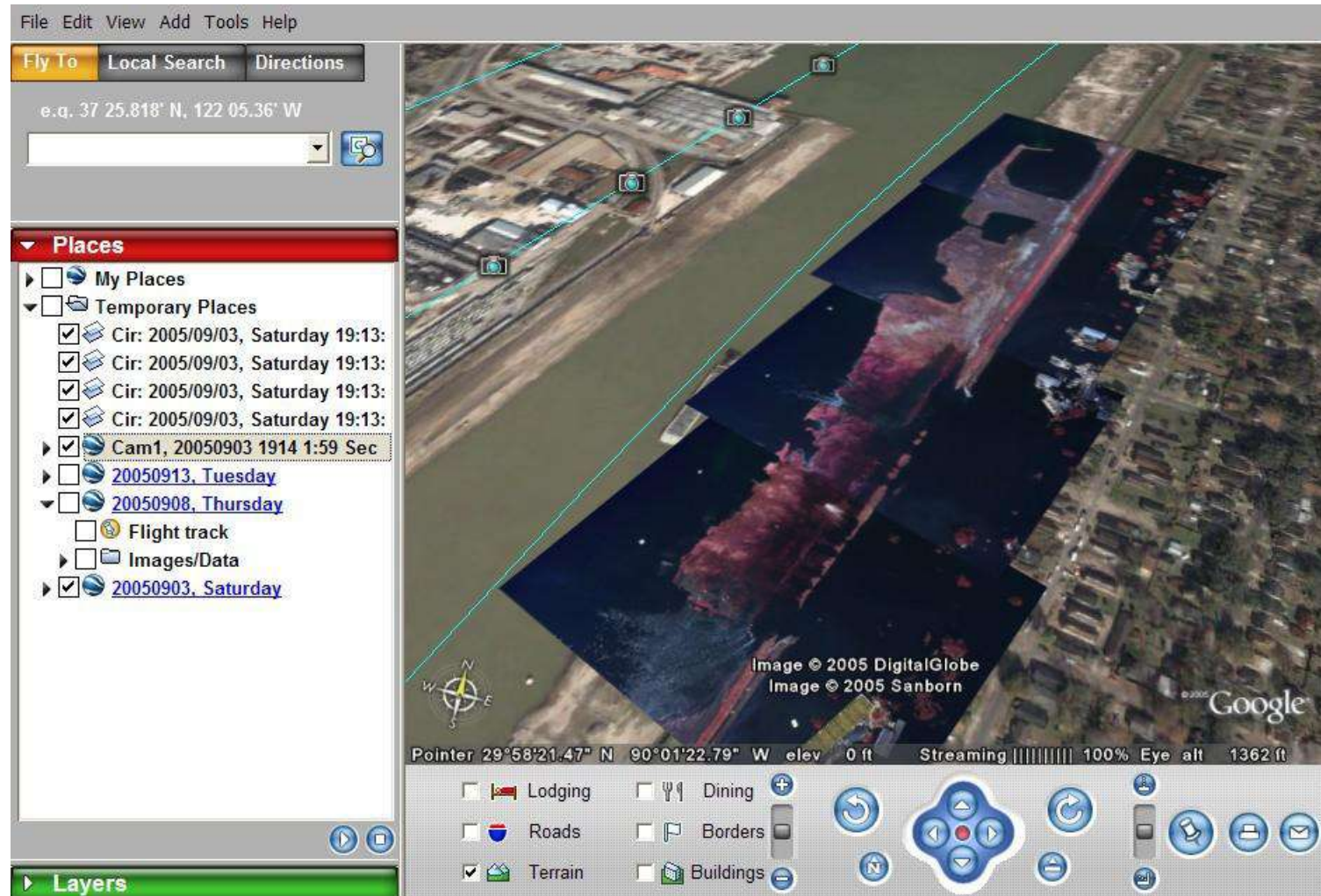


Loaded Image Display



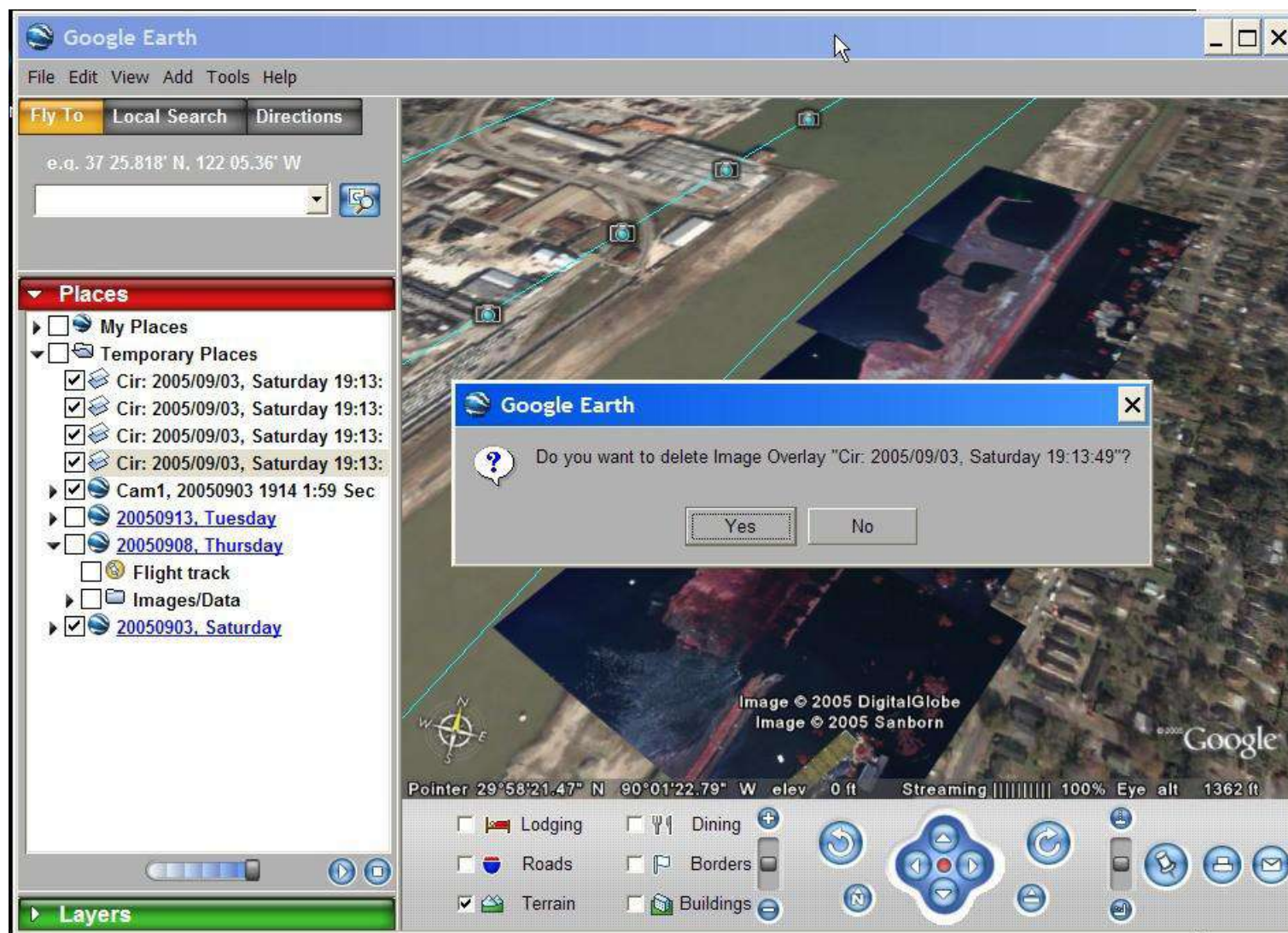
Loading Additional Photographs

- To load more photographs, simply click on other camera or airplane icons.



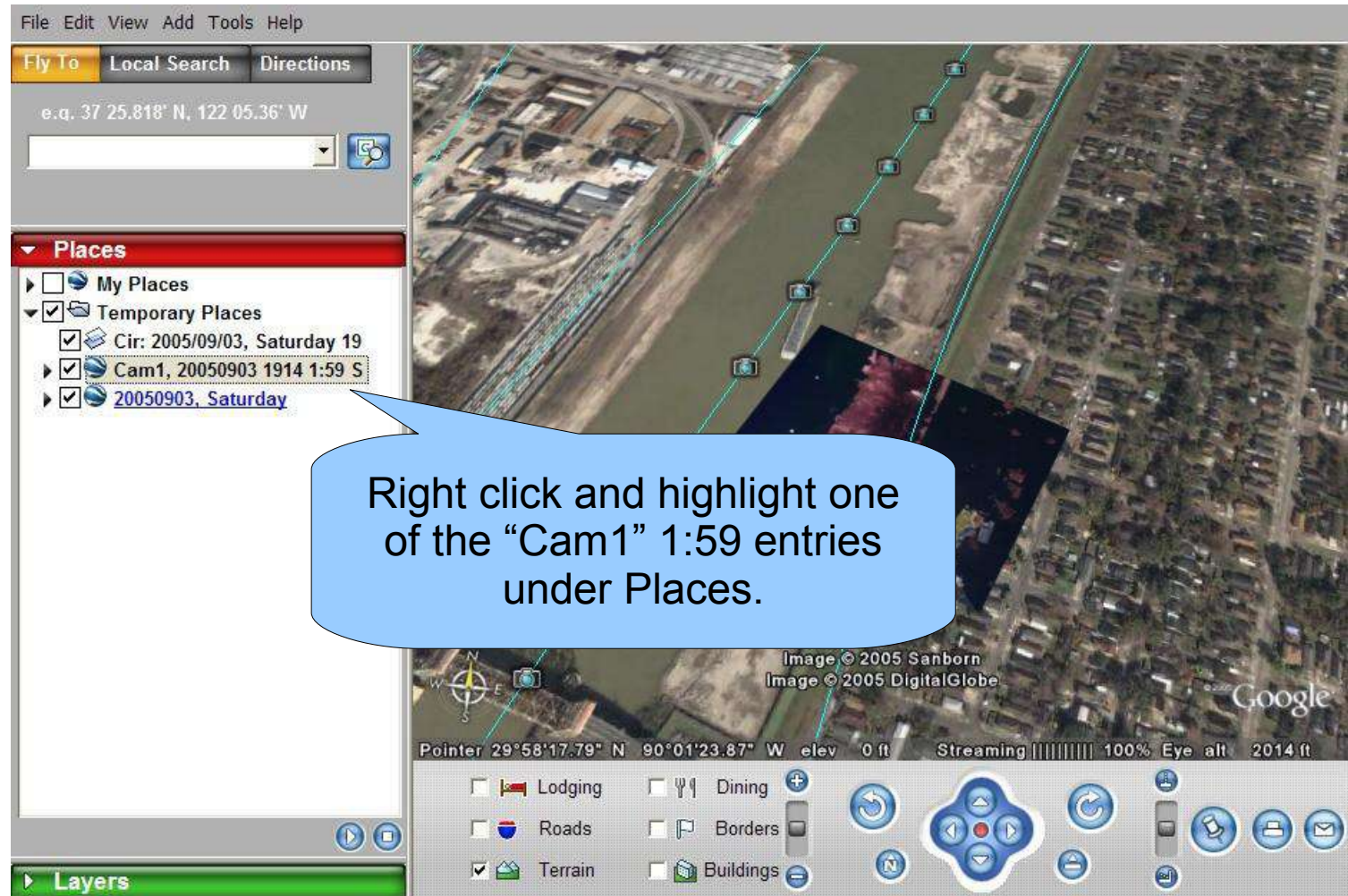
Removing Loaded Photos

- Having too many photos loaded will slow down your computer.
- Remove photos when your finished with them to keep from bogging down your system.
- Click on a photo in "Places" and them press the "DEL" key on your keyboard.
- There's no group select (yet).



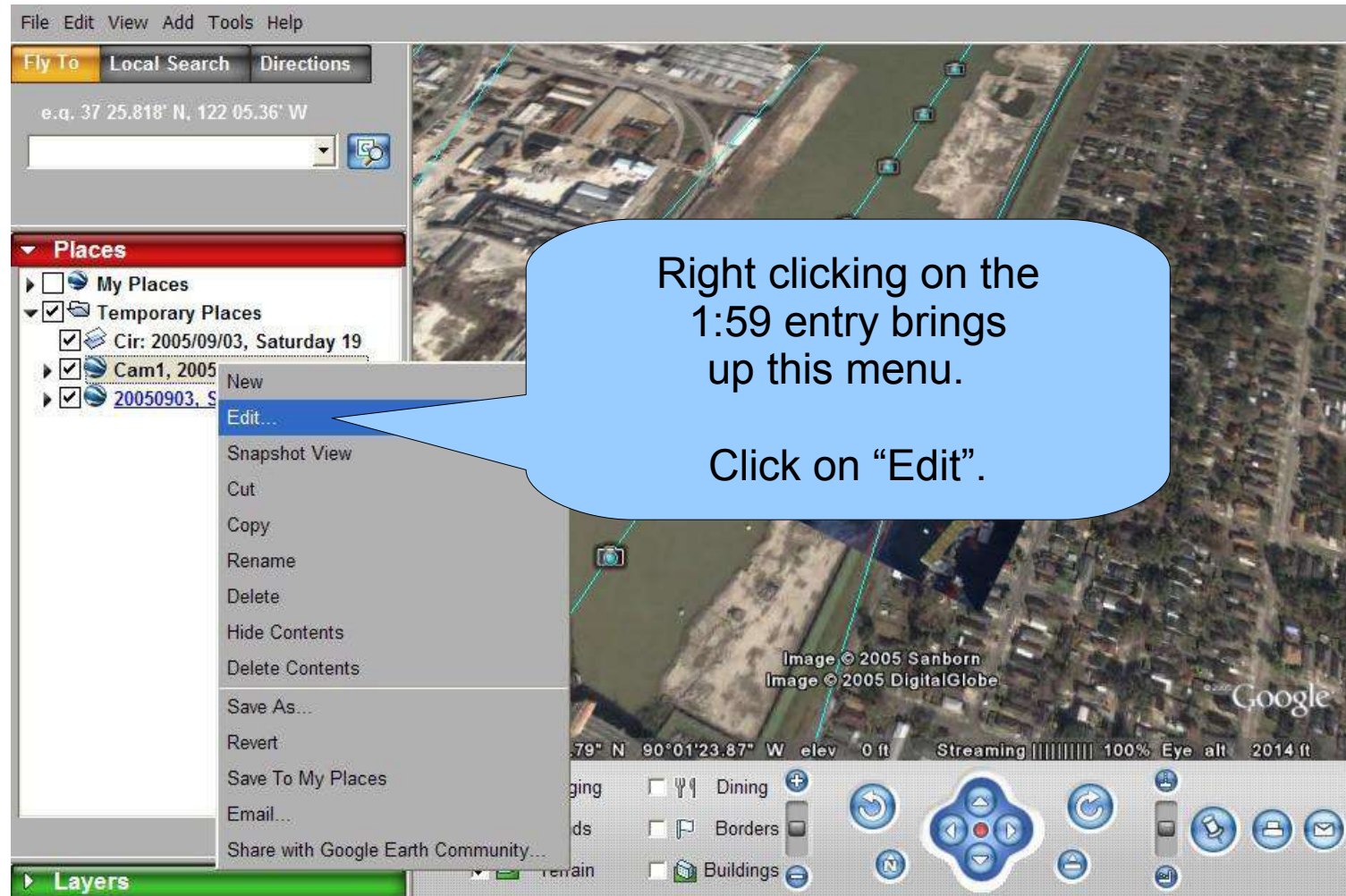
Connect Camera Markers to Ground

- To make it easier to associate second markers with a photo you can have Google Earth connect each camera icon to it's GPS position on the ground.
- The photos are not centered on the GPS position and have been adjusted for aircraft heading, pitch, and roll.



Connecting Camera Markers to the Ground

- You can edit many attributes of a given data layer.

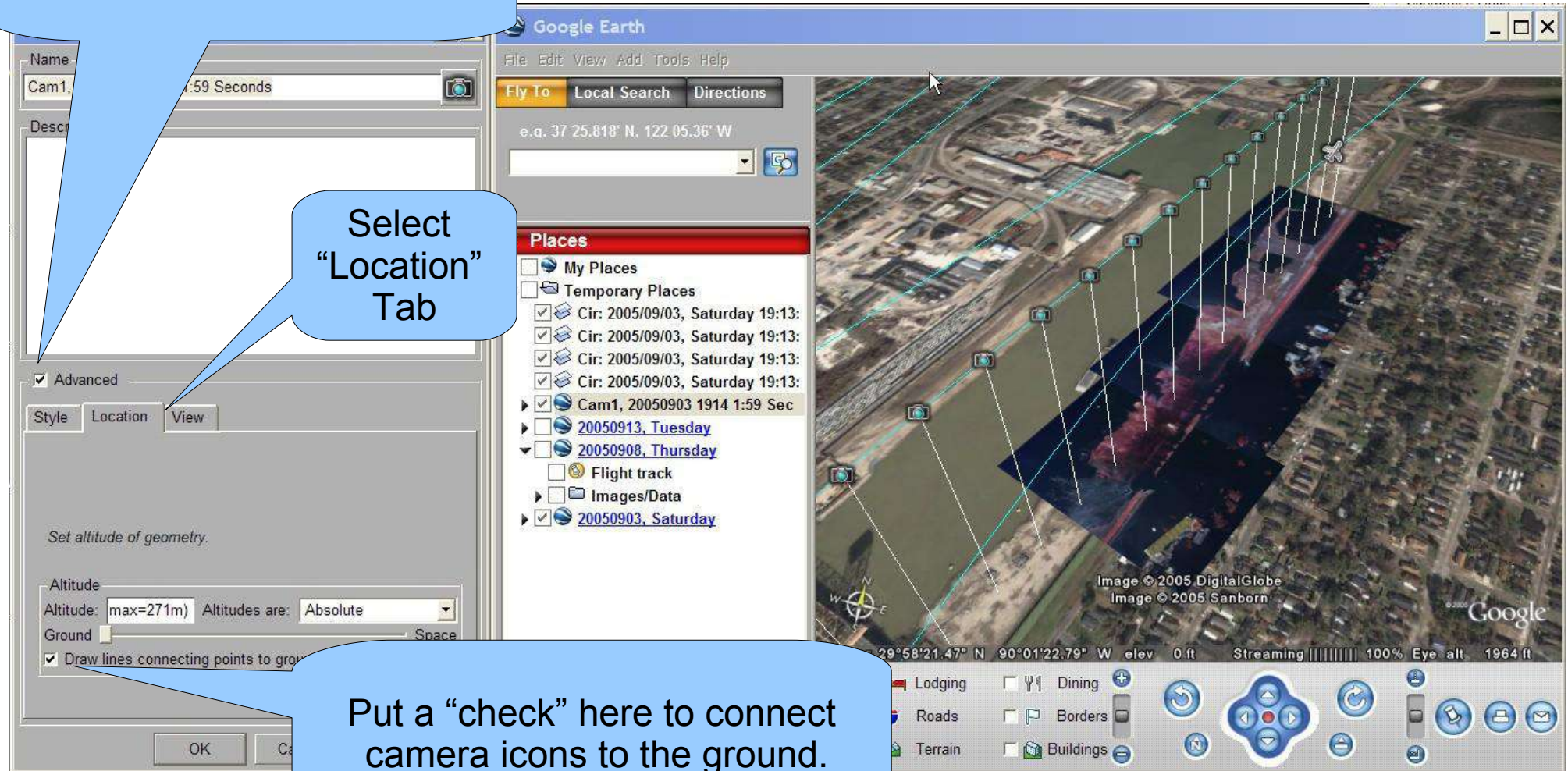


Connect Second Markers to the Ground

Be sure to check "Advanced."

Select
"Location"
Tab

Put a "check" here to connect
camera icons to the ground.



Camera GPS Positions Now Indicated on the Surface

- There are several other options under the “edit” menu which are useful. For example you can:
 - change color
 - force the GPS track to the ground
 - change the icon
 - change other useful attributes.

