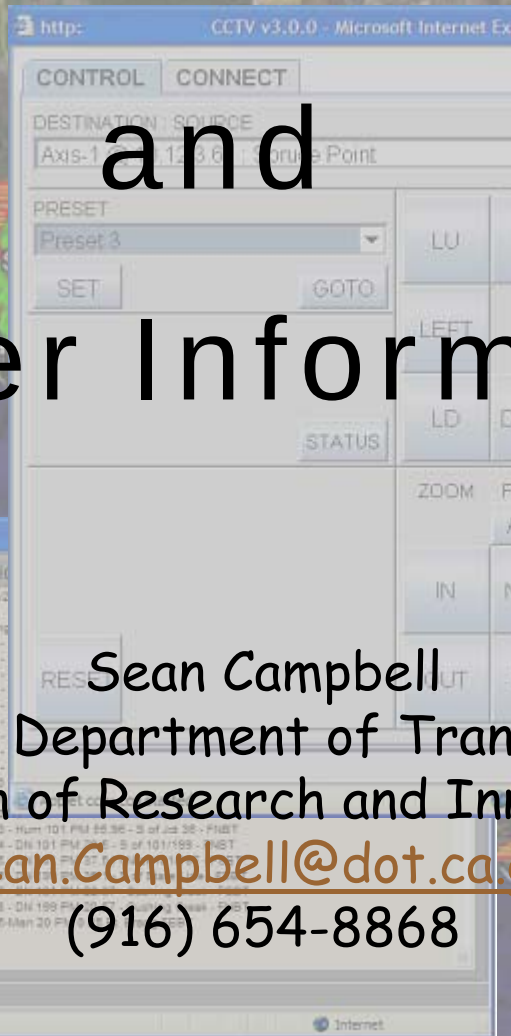


Web Based ITS Field Element Control and Traveler Information



Sean Campbell
California Department of Transportation
Division of Research and Innovation

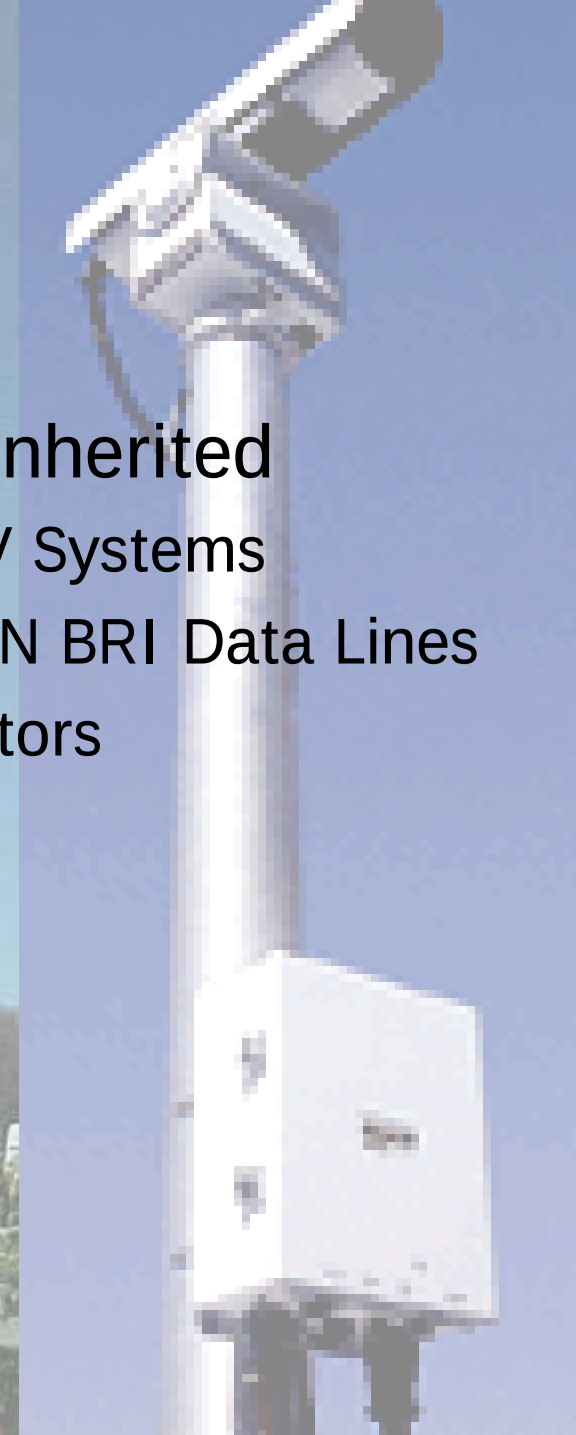
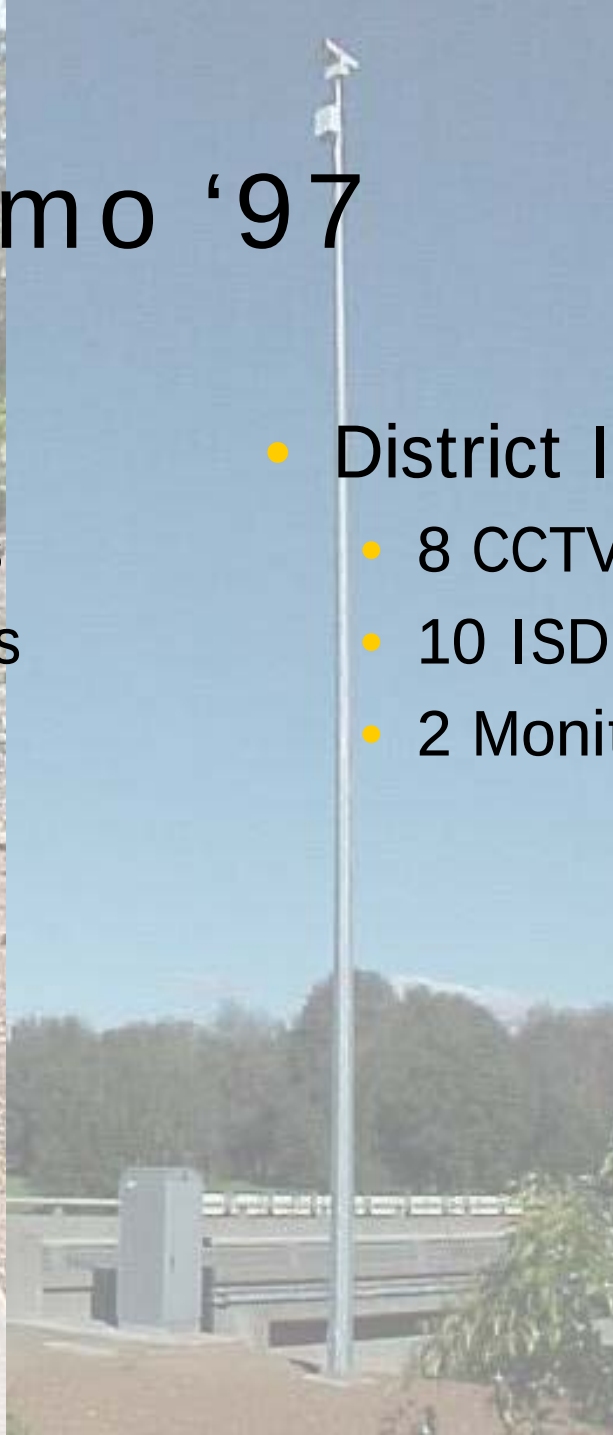
Sean.Campbell@dot.ca.gov
(916) 654-8868



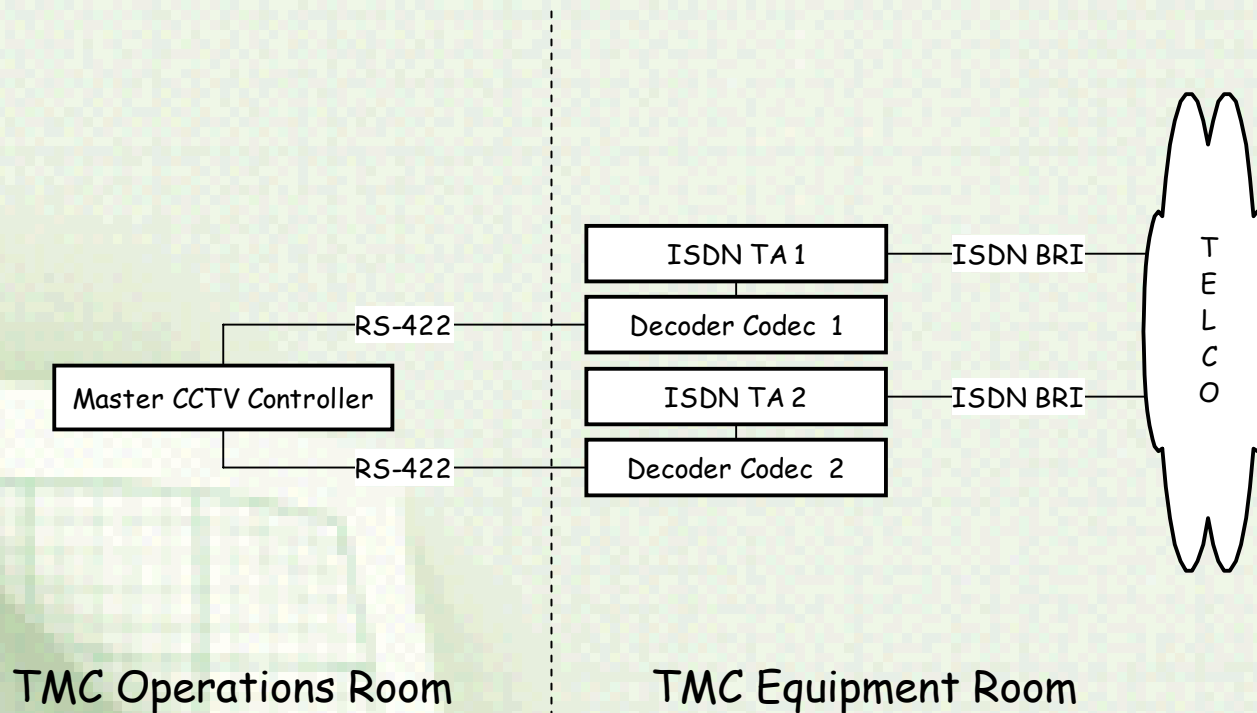
NAHSC Demo '97

- System Used
 - 9 CCTV Systems
 - 18 T1 Data Lines
 - 9 Monitors

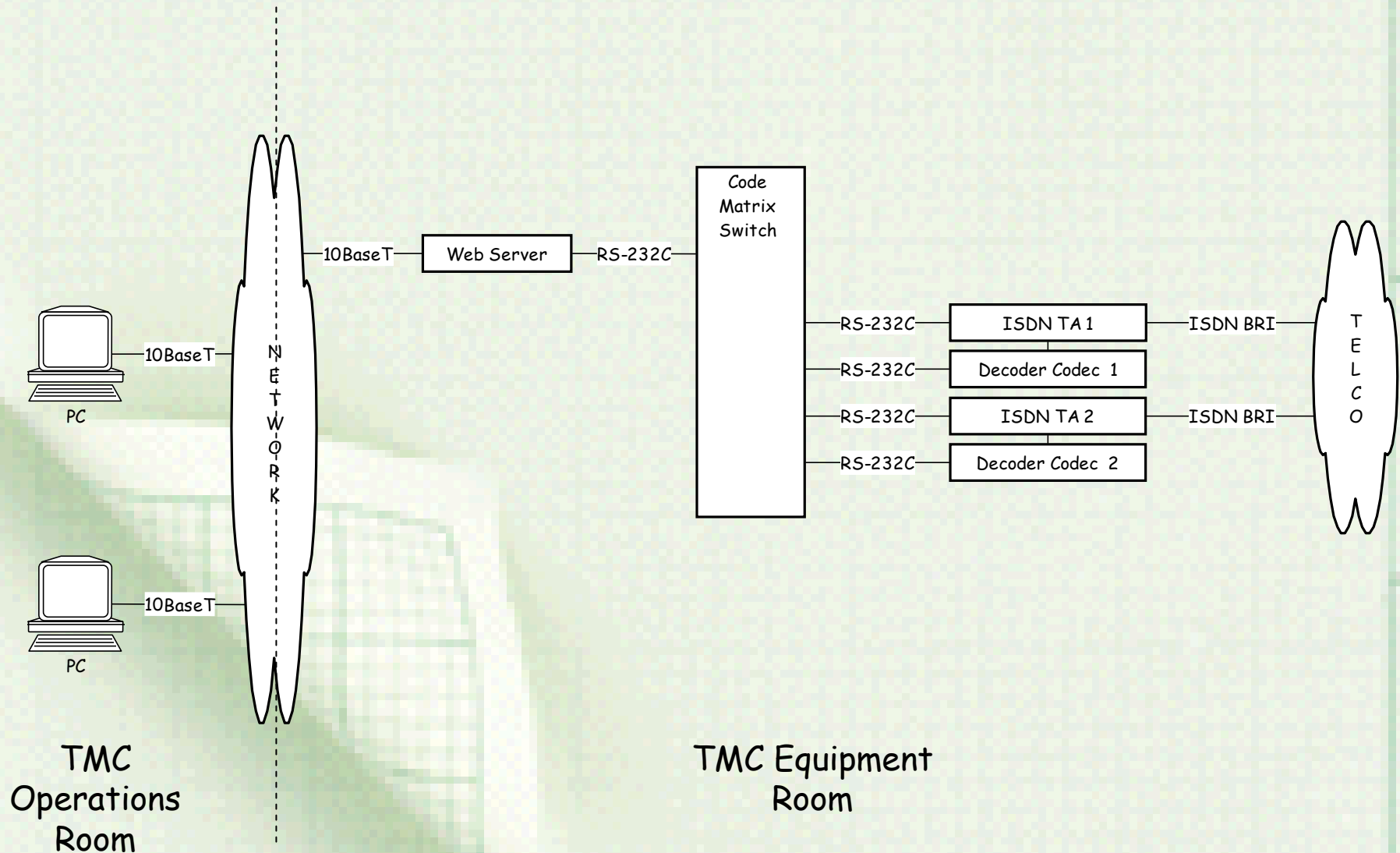
- District Inherited
 - 8 CCTV Systems
 - 10 ISDN BRI Data Lines
 - 2 Monitors



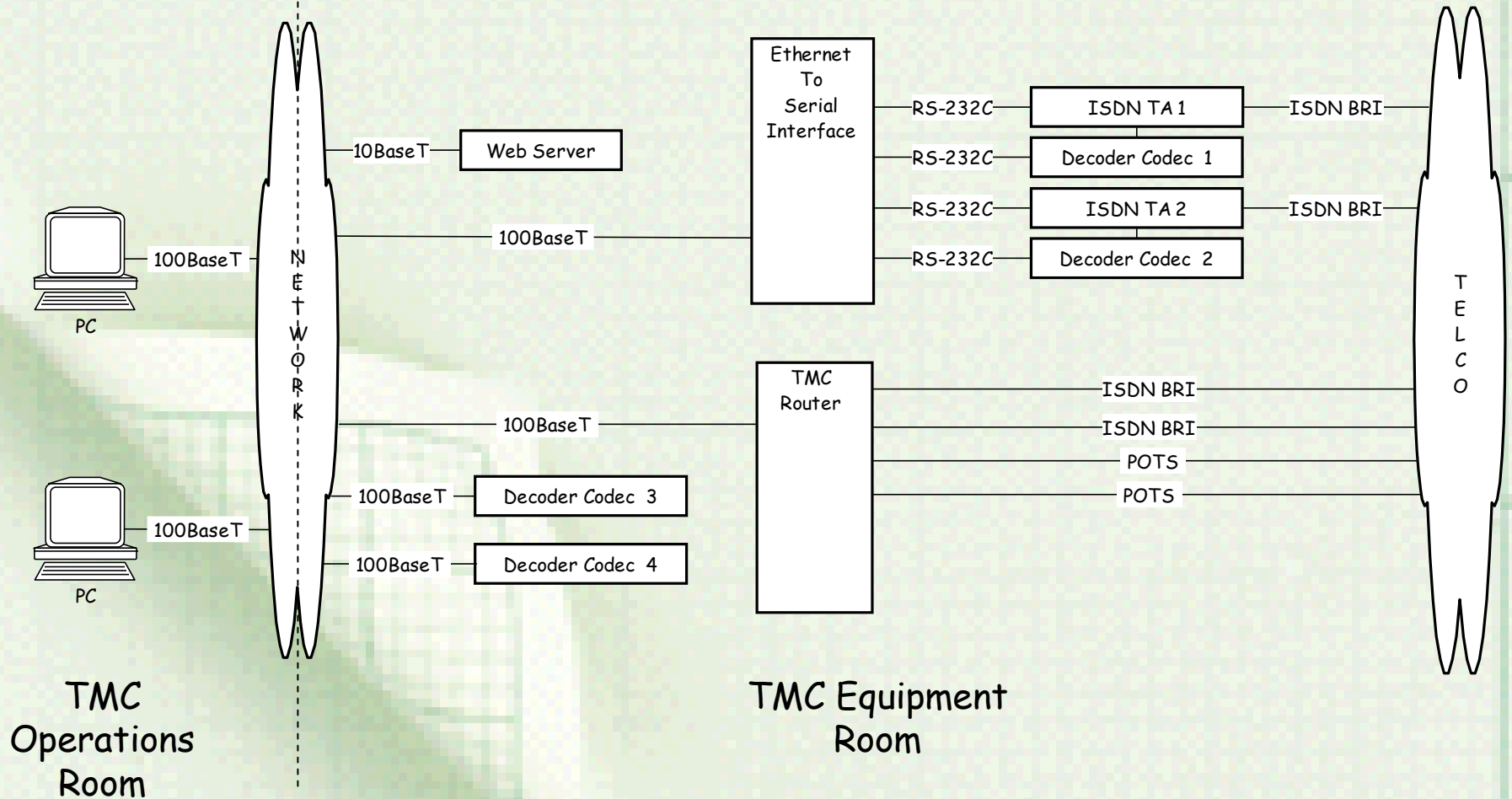
NAHSC Legacy - Before



NAHSC Legacy - After



Today



Registration Information

Registration fee: \$35

Meals are provided as part of registration fee:

Tuesday June 6:

Social Dinner reception

Wednesday June 7:

Hot Breakfast Buffet, Lunch and Dinner

Thursday June 8:

Continental Breakfast Buffet

For additional information,

please contact Chris Strong

Phone: 406-994-7351 Fax: 406-994-1697

E-mail: chriss@coe.montana.edu

Hotel Reservations/Location

Lodging: 1 Bedroom Chalets

Room rates \$153 + taxes - \$100

room credit per night

(actual per night cost \$53 + taxes)

**Please call resort to make
lodging reservation.**

800-958-3363

www.mtshastaresort.com

Rooms reservation name:

Western States Forum (WTI/CALTRANS)

Group Code WSF

Please make reservations by May 5

Directions

From Interstate 5, take the Central Mount Shasta exit, turn left over the freeway, then left onto Old Stage Road. Continue on Old Stage Road to the "V", where you will veer right onto W. A. Barr Road and follow the signs toward Lake Siskiyou. Turn left onto Siskiyou Lake Blvd. where the resort is located.

Closest airports: Redding (60 miles to the south on Interstate 5), Medford, Oregon (90 miles to the north on Interstate 5)

What Is It?

The Western States Rural Transportation Technology Implementers Forum is a one-day meeting where people involved with implementing transportation technology solutions may exchange detailed technical information about how solutions are designed, engineered, integrated and implemented. It is a day for dynamic discussion of practical and technical issues associated with rural ITS, to promote transferability of solutions and knowledge across the ITS community. The meeting places high importance on the following:

Technical content.

Presenters will delve into how specific solutions were developed, focusing on applications that have actually been deployed in the field and are being used in live traffic situations. Technical presentations are planned for an hour apiece, ensuring that this level of detail may be presented and understood.

Discussion.

Attendance will be limited to ensure that detailed technical discussions are encouraged.

Transparency and trust.

There is a need for practitioners to know not only success stories, but also about failures, so they can know what doesn't work and why.

Who should attend?

ITS technology practitioners at the state and local level:

- Field engineers and maintenance staff
- Systems integration/networking engineers
- Wireless/communications technicians

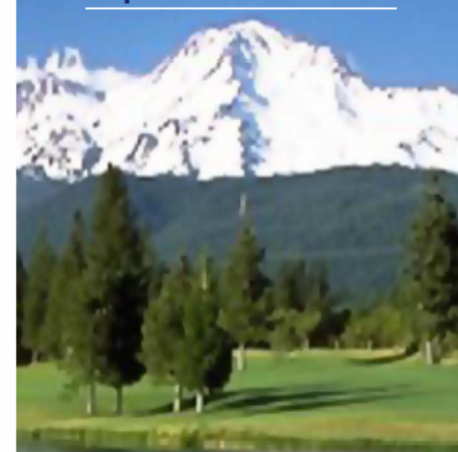
When and where is this?

June 6-7, 2006 at Mount Shasta Resort, in Mount Shasta, California.



Western Transportation Institute
Montana State University-Bozeman
PO Box 174250,
Bozeman, MT 59717-4250

Western States Rural Transportation Technology Implementers Forum



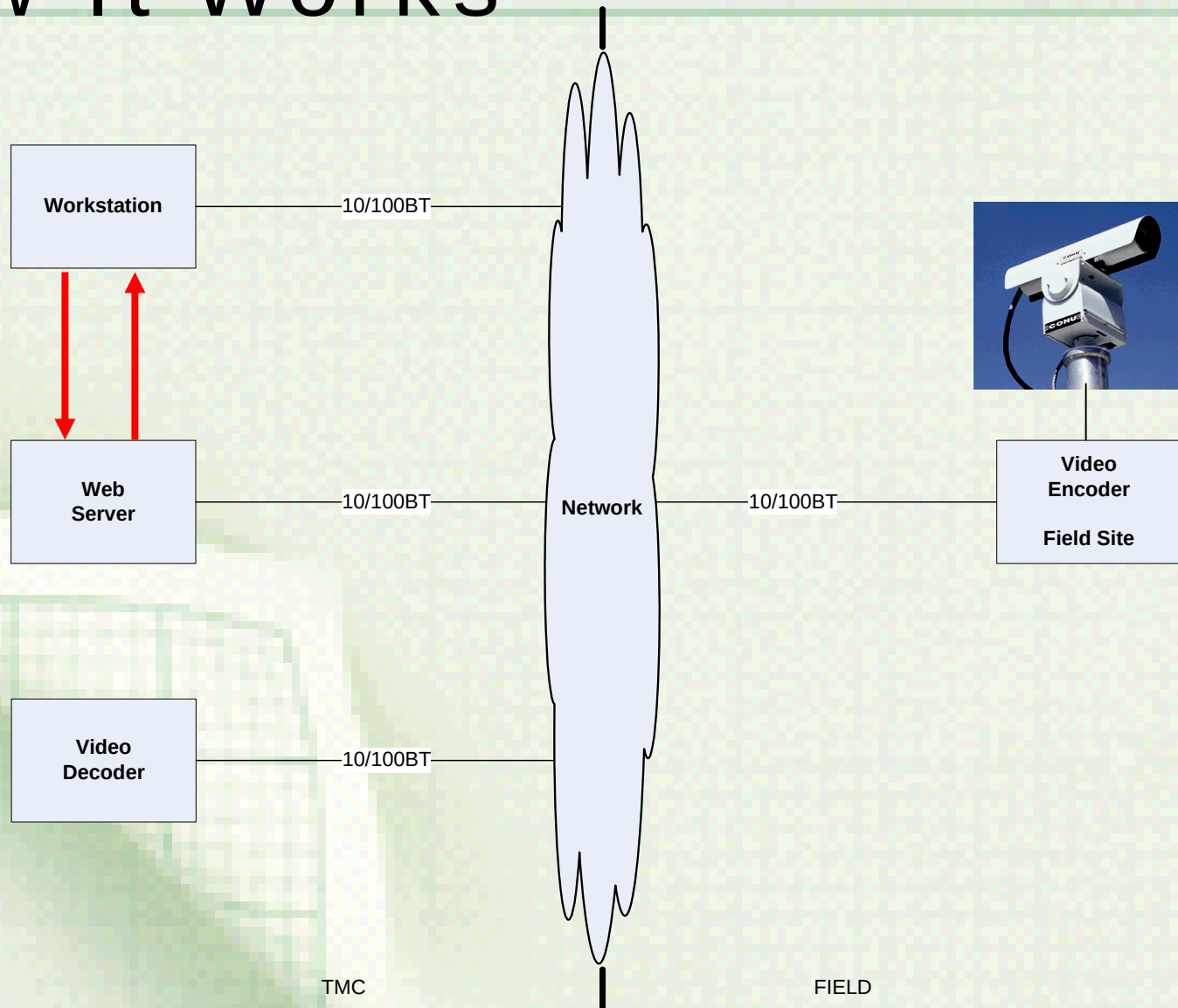
June 7, 2006
Mt Shasta Resort, Ca



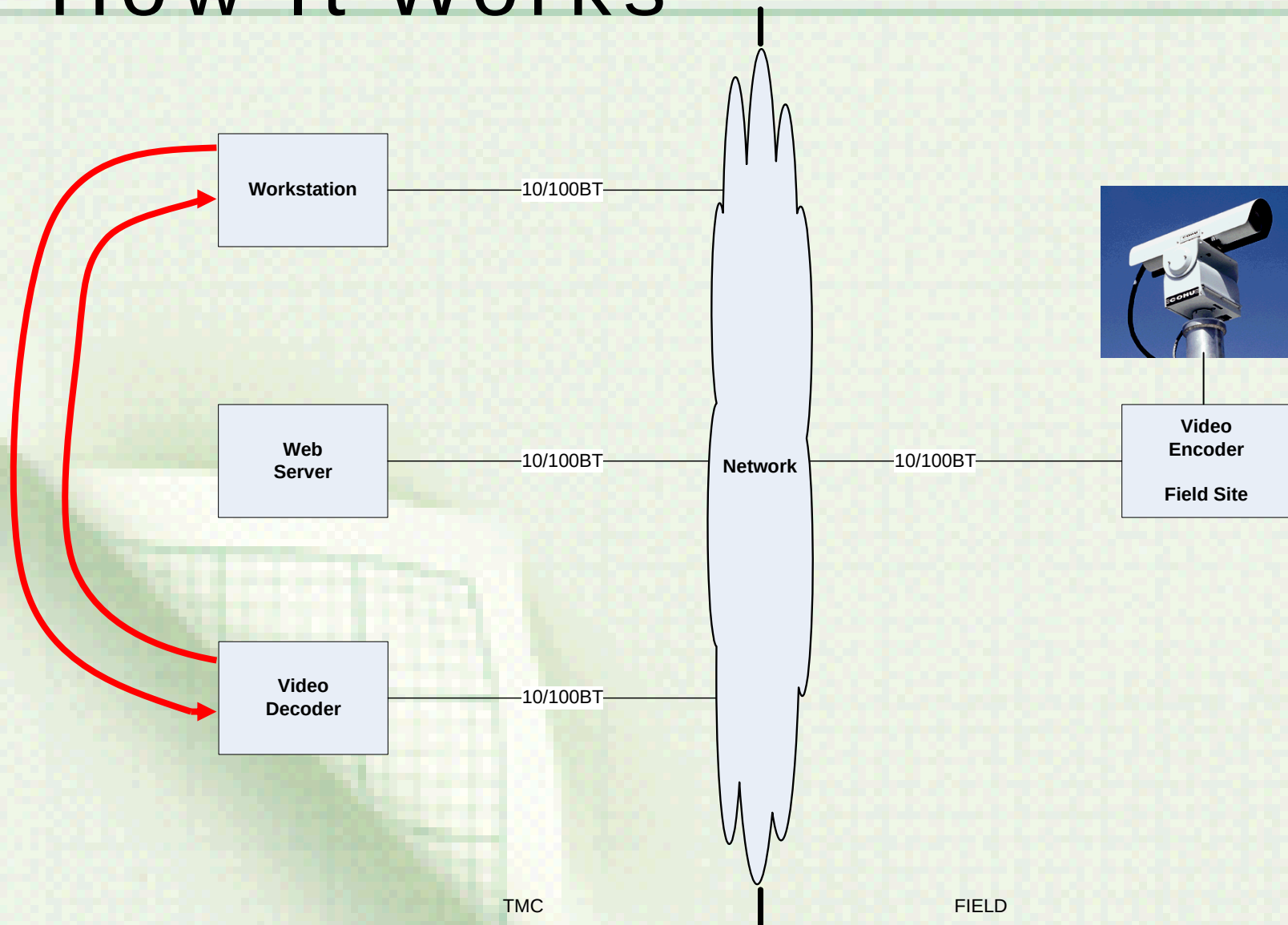
Western
Transportation Institute

ADVANCING RURAL TRANSPORTATION
THROUGH RESEARCH & EDUCATION

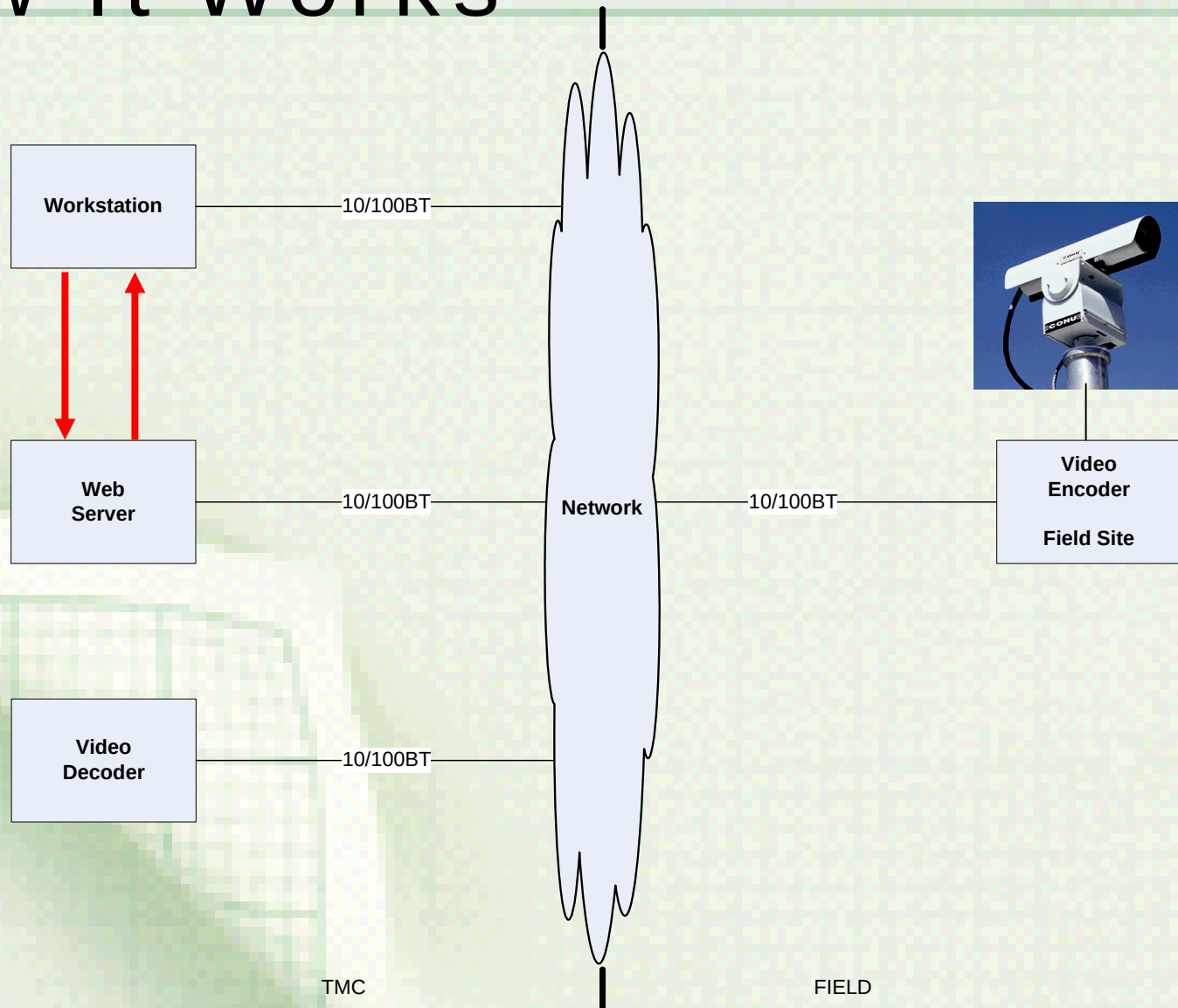
How It Works



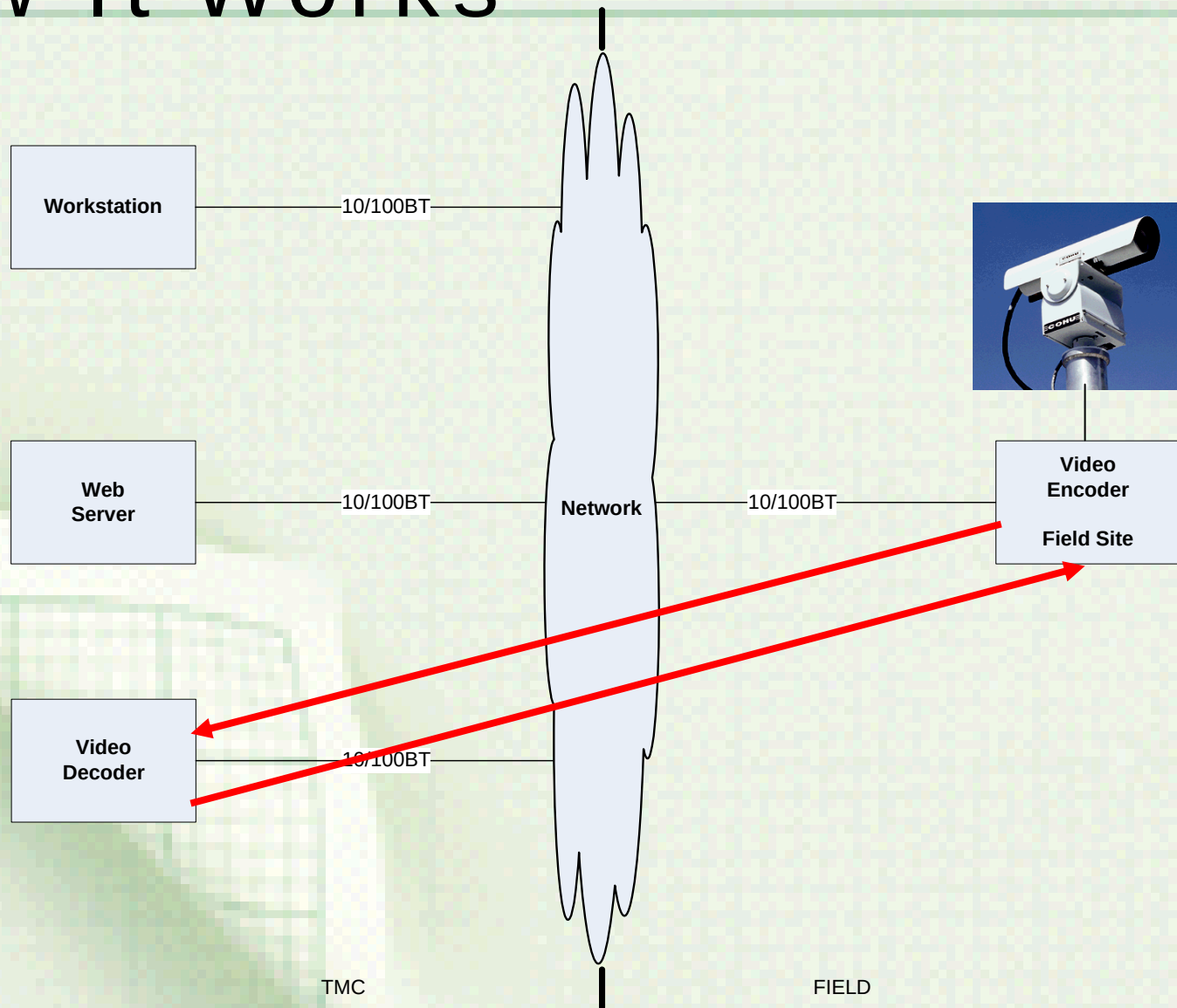
How It Works



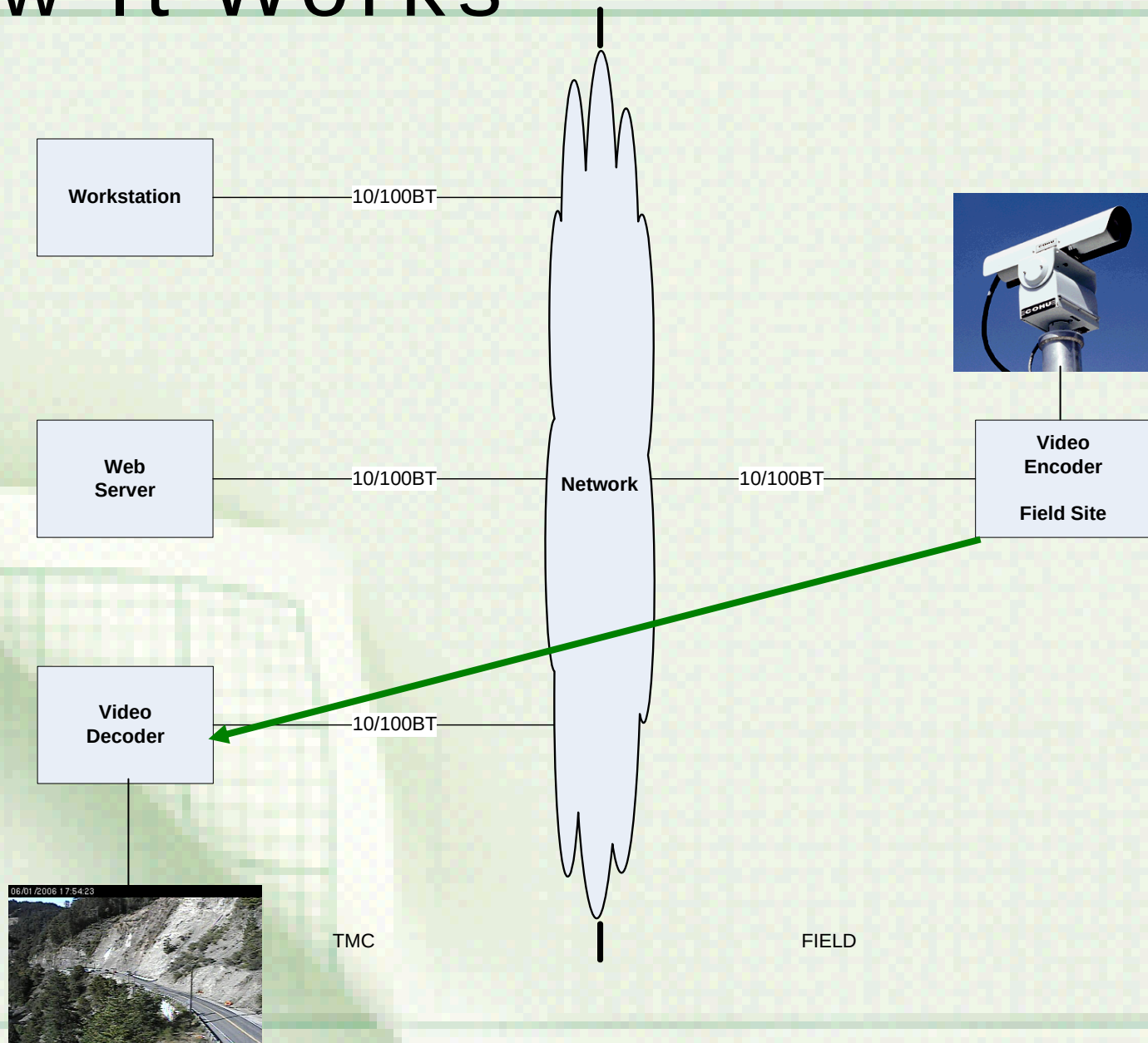
How It Works



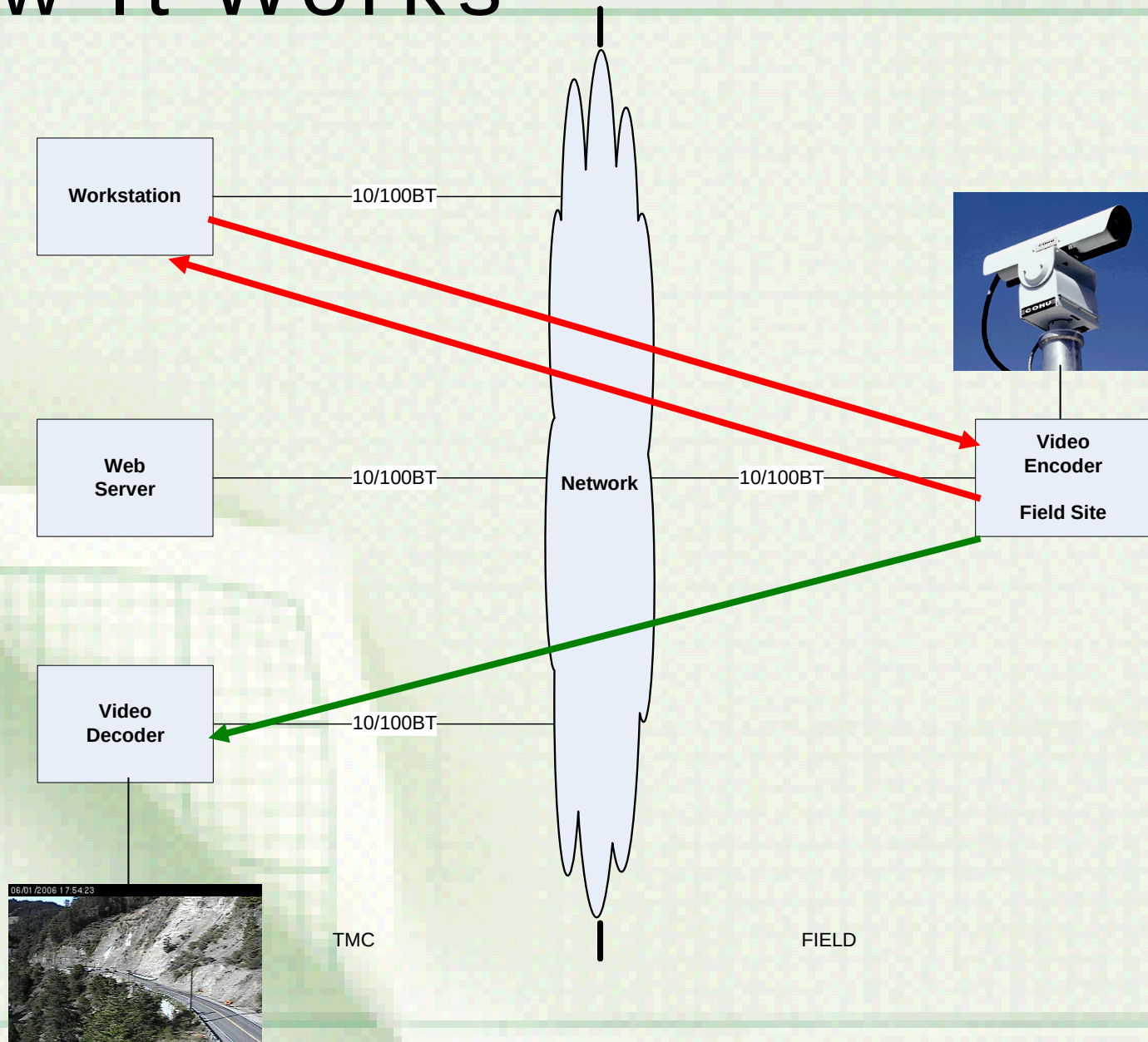
How It Works



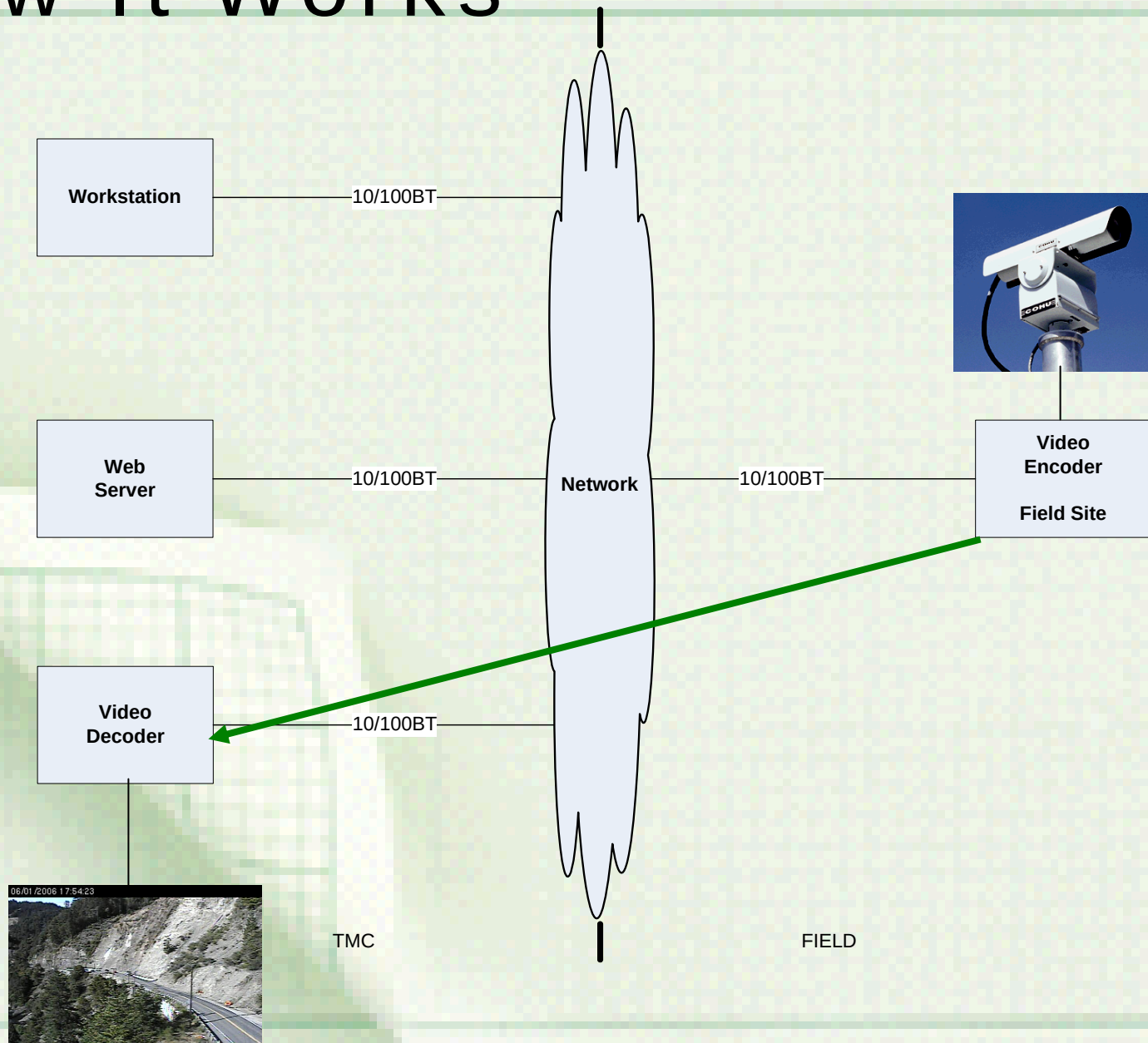
How It Works



How It Works

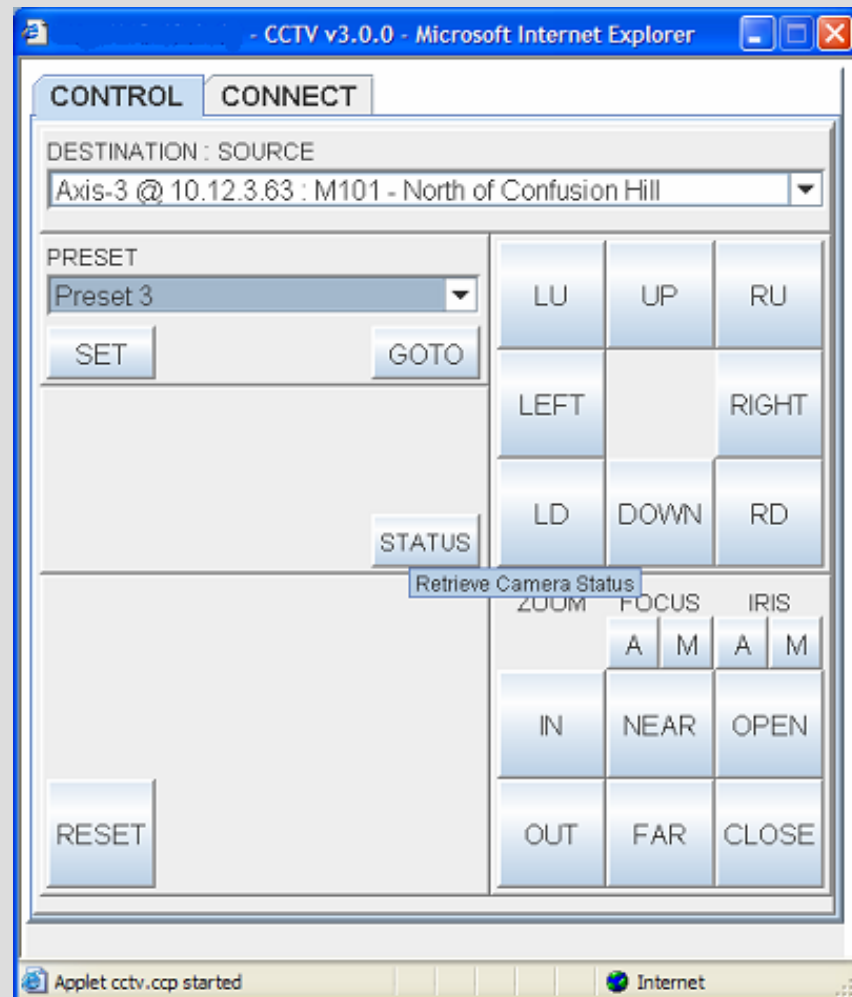
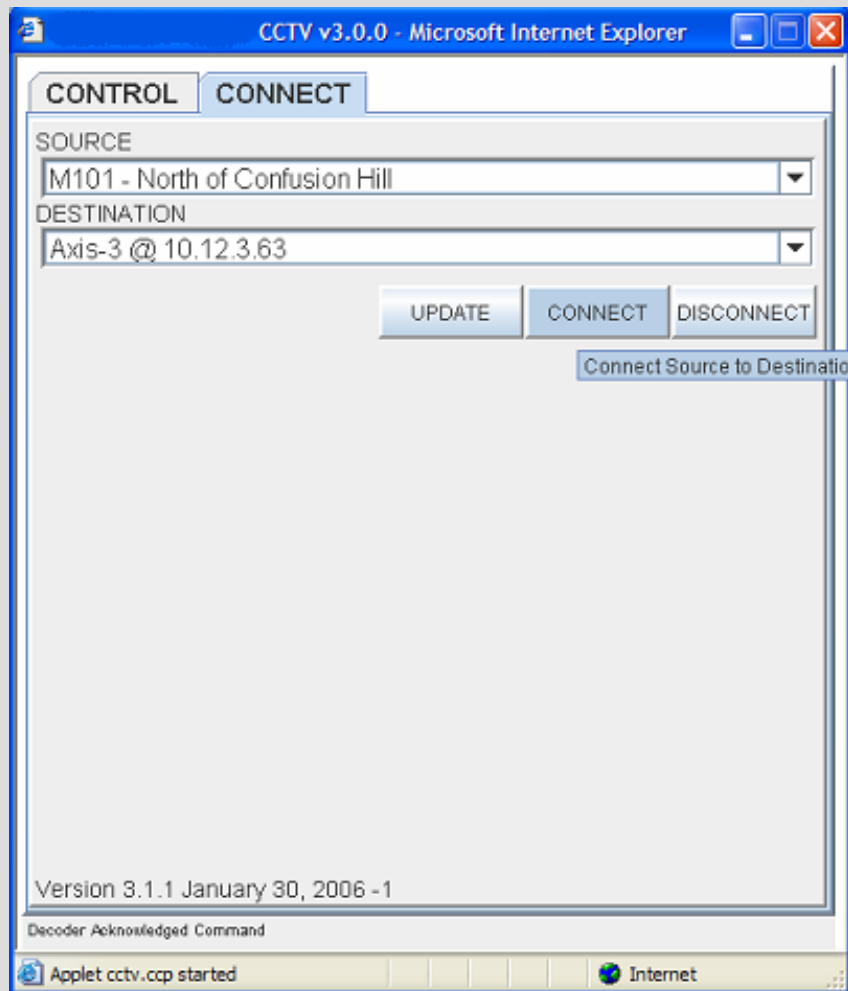


How It Works



Lessons Learned

- Latency issues
- Protocol issues
- Modularity is key
- Allow external variables
- Testing
- User demands



CMS v2.18 - Microsoft Internet Explorer

File Edit View Favorites Tools Help Back Links Go

Address

[Use Multiple CMS Mode](#)

CMS Location
18 - DN 199 PM 20.57 - Cushing Creek - FNE

ROCK SLIDE
AHEAD

Connected To: 18 - DN 199 PM 20.57 - Cushing Creek - FNBT Via C
Press Send Message Button When Ready

Message Type
1 Page (Normal)

Page 1
Single Stroke
Rock slide
ahead

Library Message Number: 22 CMS 2.18 January 31, 2006

[See Library List](#)
[See Signs That Are On List](#)

Applet CMS started Internet

CMS v2.18 - Microsoft Internet Explorer

File Edit View Favorites Tools Help Back Links Go

Address

[Use Multiple CMS Mode](#)

CMS Location
18 - DN 199 PM 20.57 - Cushing Creek - FNE

SHARP CURVES
STEEP GRADE

Not connected to the CMS
CMS Information From Database

Message Type
2 Pages (Extended)

Displaying:
2 Pages (Extended)
Since:
10:46 7/20/2006
On Until:
The TMC Turns Off The CMS
Page Display Time:
2 Seconds

Library Message Number: 22 CMS 2.18 January 31, 2006

[See Library List](#)
[See Signs That Are On List](#)

Applet CMS started Internet

- MultiCMS v2.2.0 - Microsoft Internet Explorer

AMBER ALERT CHILD ABDUCTION

Message Type
1 Page (Normal)

Library Message Number:
1 Retrieve

Send Message

Page 1
Single Stroke

amber alert

child

abduction

Transaction Log

Multi-CMS v2.20 March 3, 2008

The following CMS have been loaded:

- 1 - Men 101 PM 31.6 - N of 101/20 Calpella - FSBT
- 2 - Men 101 PM 29.8 - S of 101/20 Calpella - FNBT
- 3 - Hum 101 PM 58.7 - N of Jct 36 - FSBT
- 4 - Hum 101 PM 87.7 - S of 101/299 - FNBT
- 5 - Hum 101 PM 89.4 - N of 101/299 - FSBT
- 6 - Men 20 PM 35.6 - E of 101/20 Calpella - FWBT
- 7 - Men 20 PM 32.29 - W of Willits - FWBT
- 8 - Men 101 PM 48.53 - N of Willits - FNBT
- 9 - Lak 20 PM 7.7 - W of Jct 29 - FEBT
- 10 - Lak 20 PM 30.45 - W of Jct 53 - FEBT
- 11 - Lak 20 PM 31.94 - E of Jct 53 - FWBT
- 12 - Lak 53 PM 5.1 - S of Jct 53 - FNBT
- 13 - Hum 101 PM 55.96 - S of Jct 36 - FNBT
- 14 - DN 101 PM 28.5 - S of 101/199 - FNBT
- 15 - DN 101 PM 37.54 - N of 101/197 - FSBT
- 16 - DN 199 PM 36.1 - S of State Line - FSBT
- 17 - DN 101 PM 22.37 - Cushing Creek - FSBT
- 75-Men 20 PM 0.25 Ft. Bragg FEBT

[See Library List](#) [See Signs That Are On List](#)

Applet MultiCMS started Internet

- MultiCMS v2.2.0 - Microsoft Internet Explorer

AMBER ALERT CHILD ABDUCTION

YOU ARE ABOUT TO SEND
THIS MESSAGE TO 18 SIGNS.

DO YOU WANT TO CONTINUE?

YES

NO

Transaction Log

Multi-CMS v2.20 March 3, 2008

The following CMS have been loaded:

- 1 - Men 101 PM 31.6 - N of 101/20 Calpella - FSBT
- 2 - Men 101 PM 29.8 - S of 101/20 Calpella - FNBT
- 3 - Hum 101 PM 58.7 - N of Jct 36 - FSBT
- 4 - Hum 101 PM 87.7 - S of 101/299 - FNBT
- 5 - Hum 101 PM 89.4 - N of 101/299 - FSBT
- 6 - Men 20 PM 35.6 - E of 101/20 Calpella - FWBT
- 7 - Men 20 PM 32.29 - W of Willits - FWBT
- 8 - Men 101 PM 48.53 - N of Willits - FNBT
- 9 - Lak 20 PM 7.7 - W of Jct 29 - FEBT
- 10 - Lak 20 PM 30.45 - W of Jct 53 - FEBT
- 11 - Lak 20 PM 31.94 - E of Jct 53 - FWBT
- 12 - Lak 53 PM 5.1 - S of Jct 53 - FNBT
- 13 - Hum 101 PM 55.96 - S of Jct 36 - FNBT
- 14 - DN 101 PM 28.5 - S of 101/199 - FNBT
- 15 - DN 101 PM 37.54 - N of 101/197 - FSBT
- 16 - DN 199 PM 36.1 - S of State Line - FSBT
- 17 - DN 101 PM 22.37 - Cushing Creek - FSBT
- 75-Men 20 PM 0.25 Ft. Bragg FEBT

[See Library List](#) [See Signs That Are On List](#)

Applet MultiCMS started Internet

- Hardware

- Embedded Web Server \$595
- Ethernet To Serial Converter \$995
- Misc Wiring, Nuts, Bolts, Stuff \$200

- Software

- Developed In-House 4 Months
- Software Tools \$400
- Web browser FREE
- Java plug-in FREE

Search

Fly To Find Businesses Di < >

e.g., 1600 Pennsylvania Ave, 20006



Places

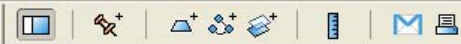
- My Places
- Temporary Places



Layers

View: Core

- Primary Database
 - ☒ Terrain
 - ☒ roads
 - ☒ borders
 - ☒ Populated Places
 - ☒ Alternative Place Name
 - ☐ 3D Buildings
 - ☐ Gas, Food, Lodging
 - ☐ National Geographic M
 - ☐ Google Earth Communit
 - ☐ Shopping and Services
 - ☐ Transportation
 - ☐ Geographic Features
 - ☐ Parks and Recreation
 - ☐ Community Services



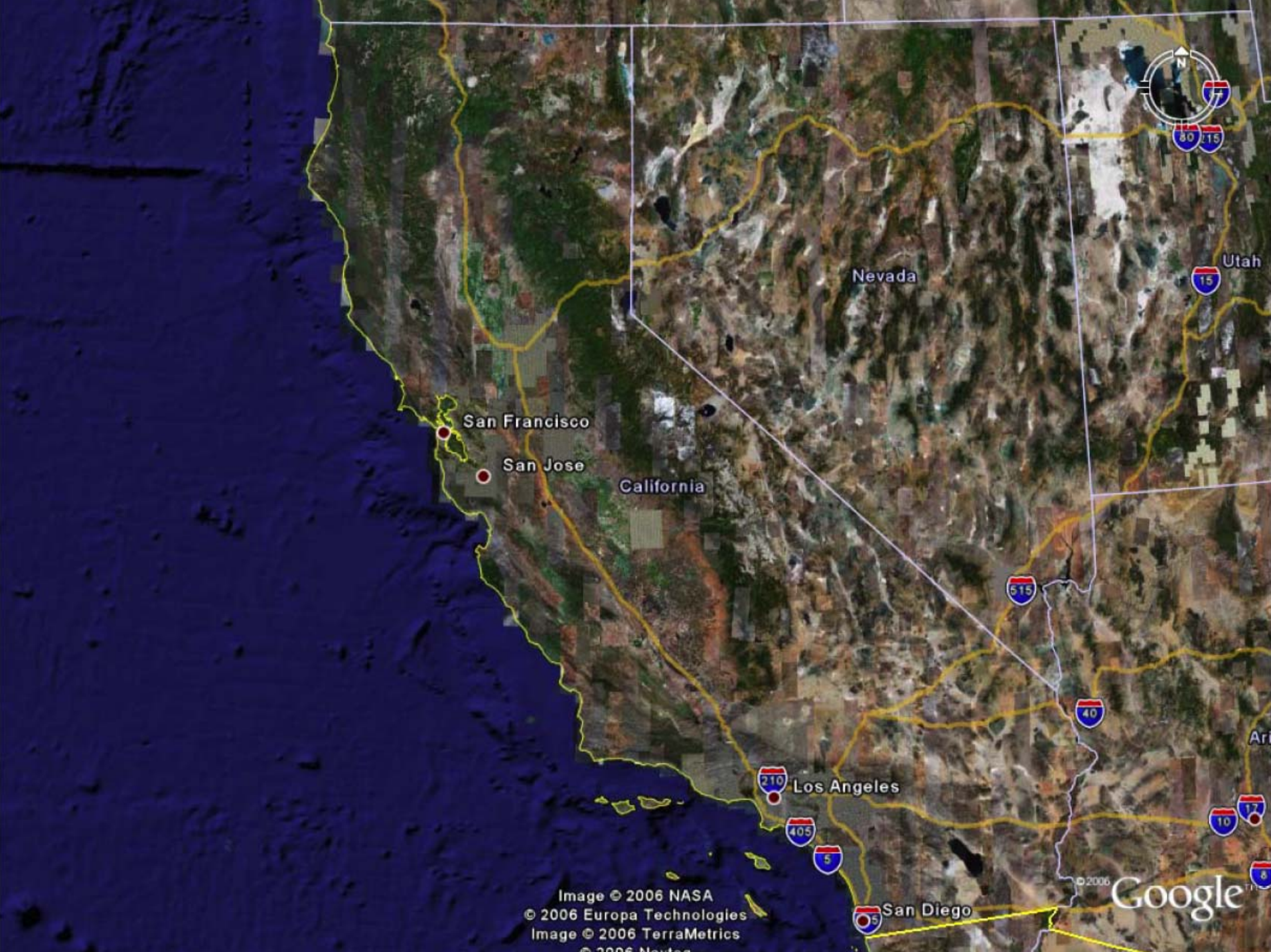
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Image © 2006 TerraMetrics
Image © 2006 NASA

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Pointer lat 40.819473° lon -99.463689°

Streaming 100%

Eve alt 5819.57 mi



San Francisco

San Jose

California

Nevada

Utah

Los Angeles

San Diego

Image © 2006 NASA
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Image © 2006 TerraMetrics
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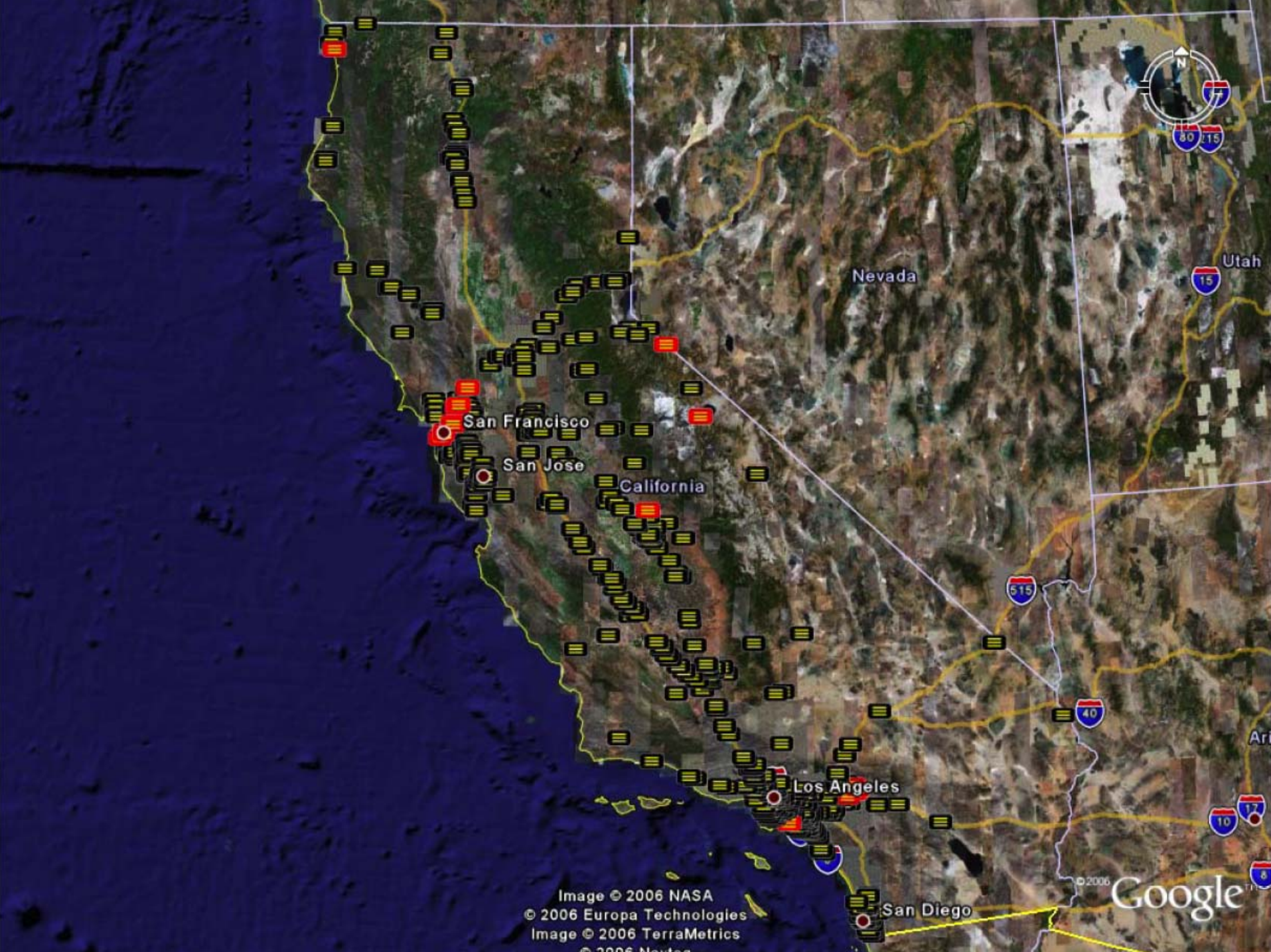
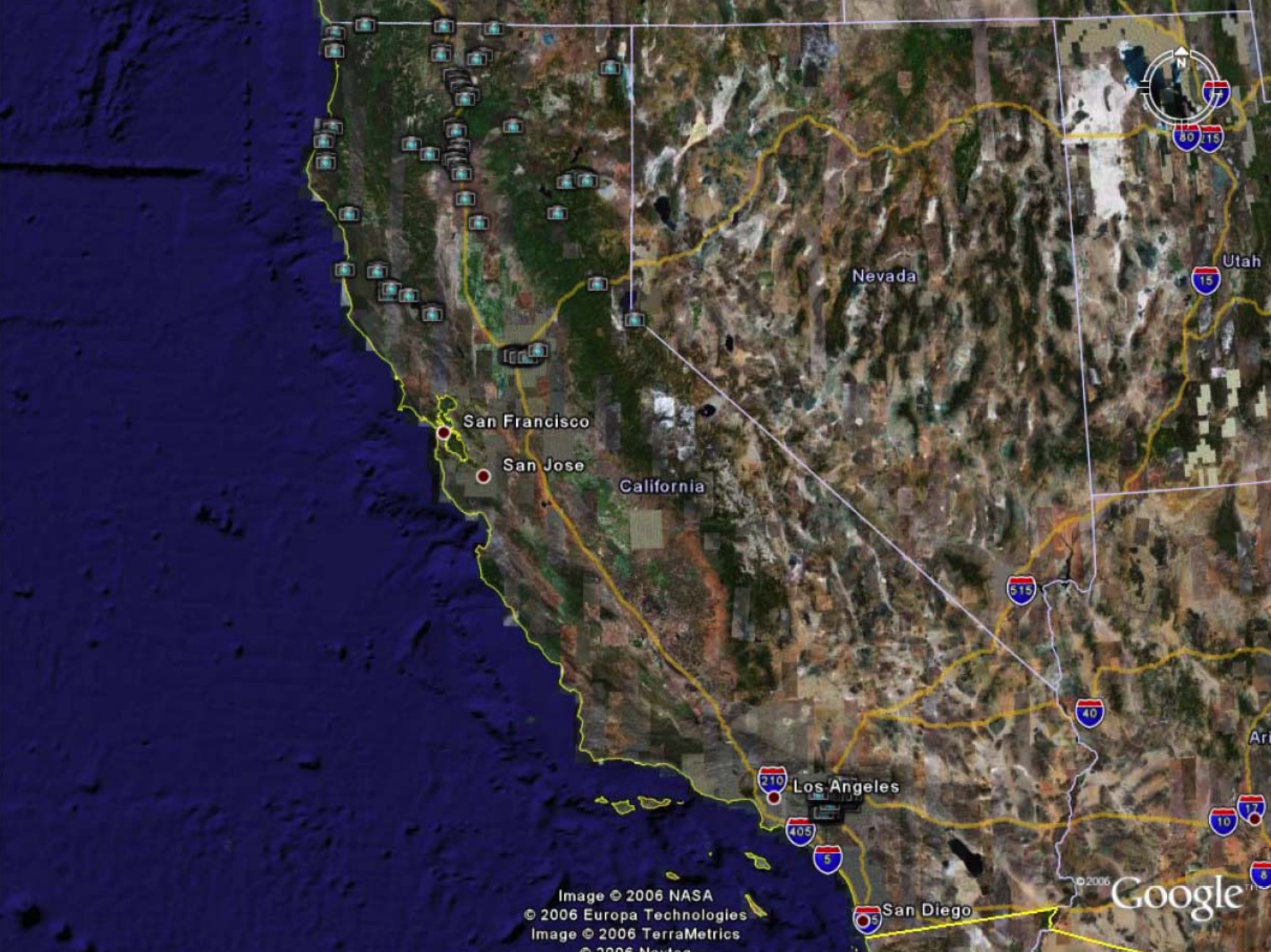


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Nevada

Utah

San Francisco

San Jose

California



Los Angeles



San Diego



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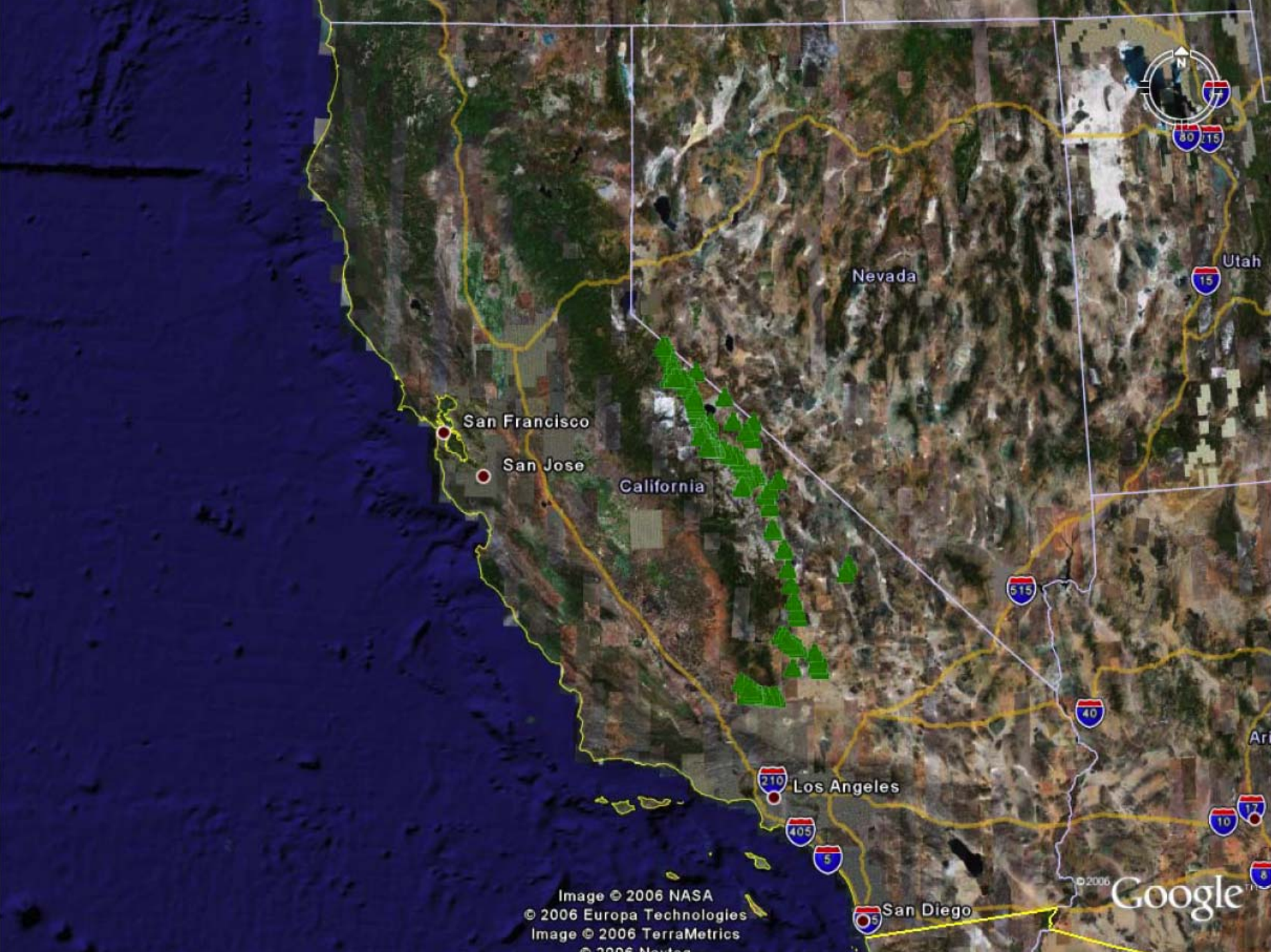


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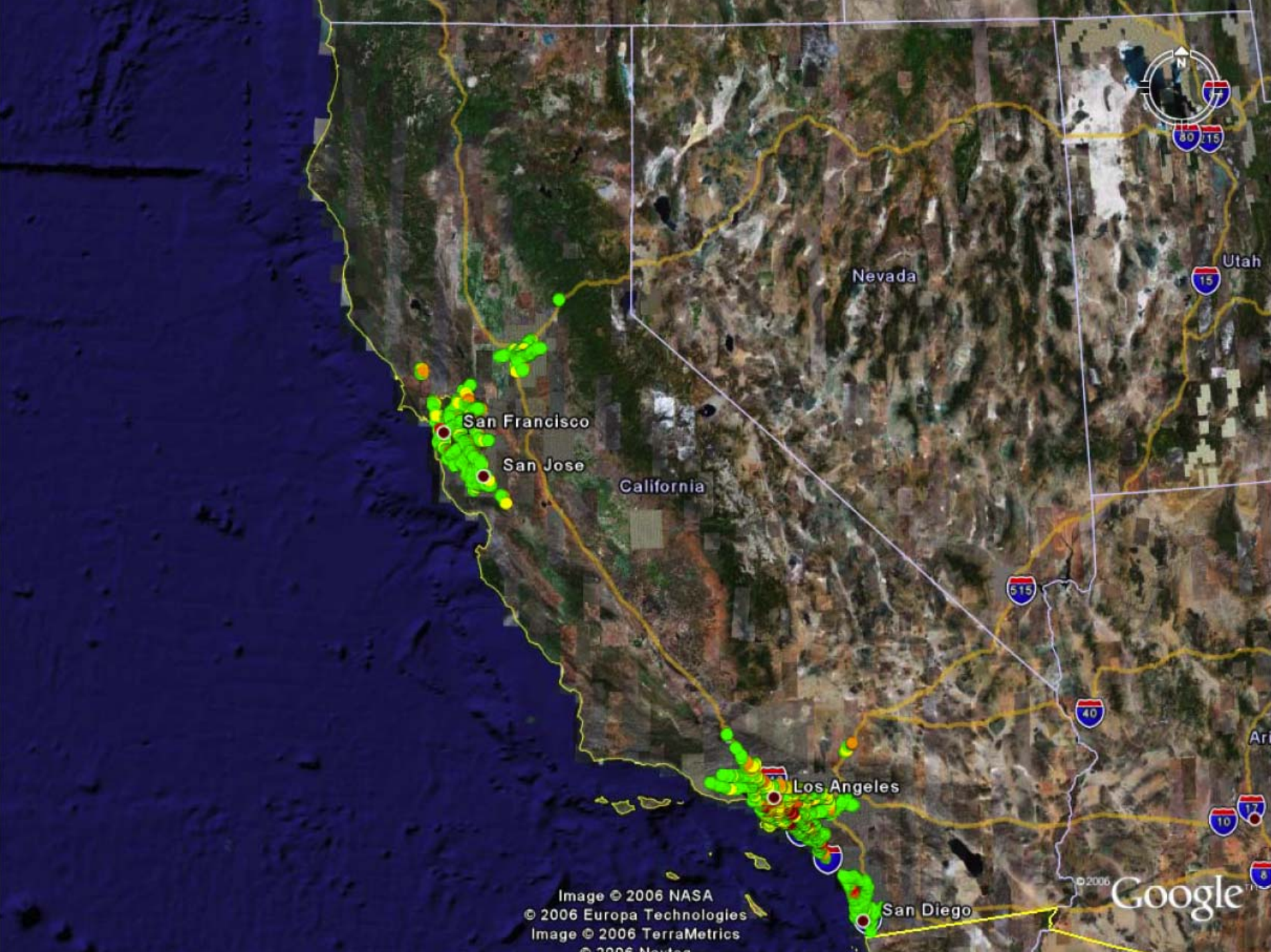


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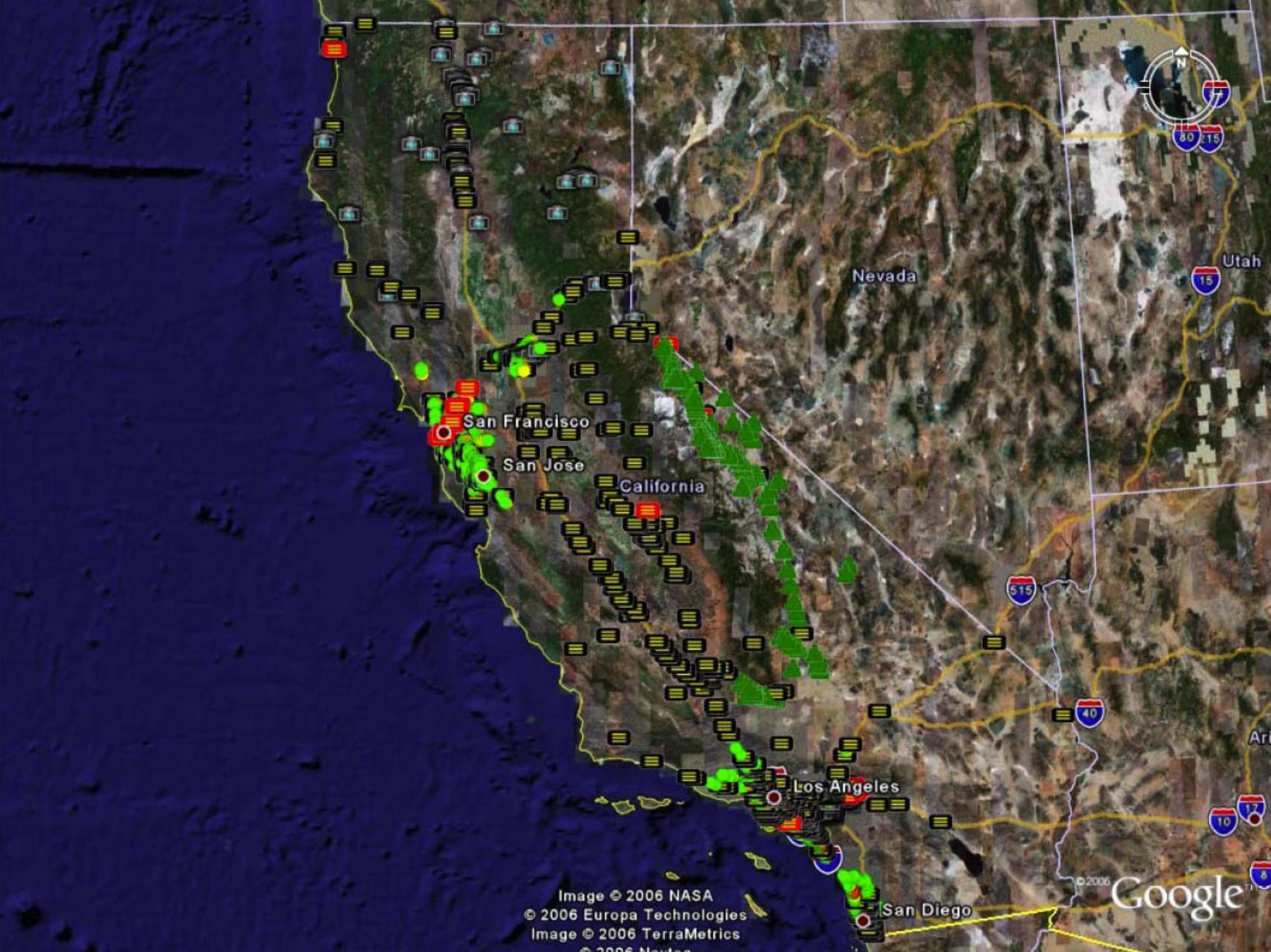
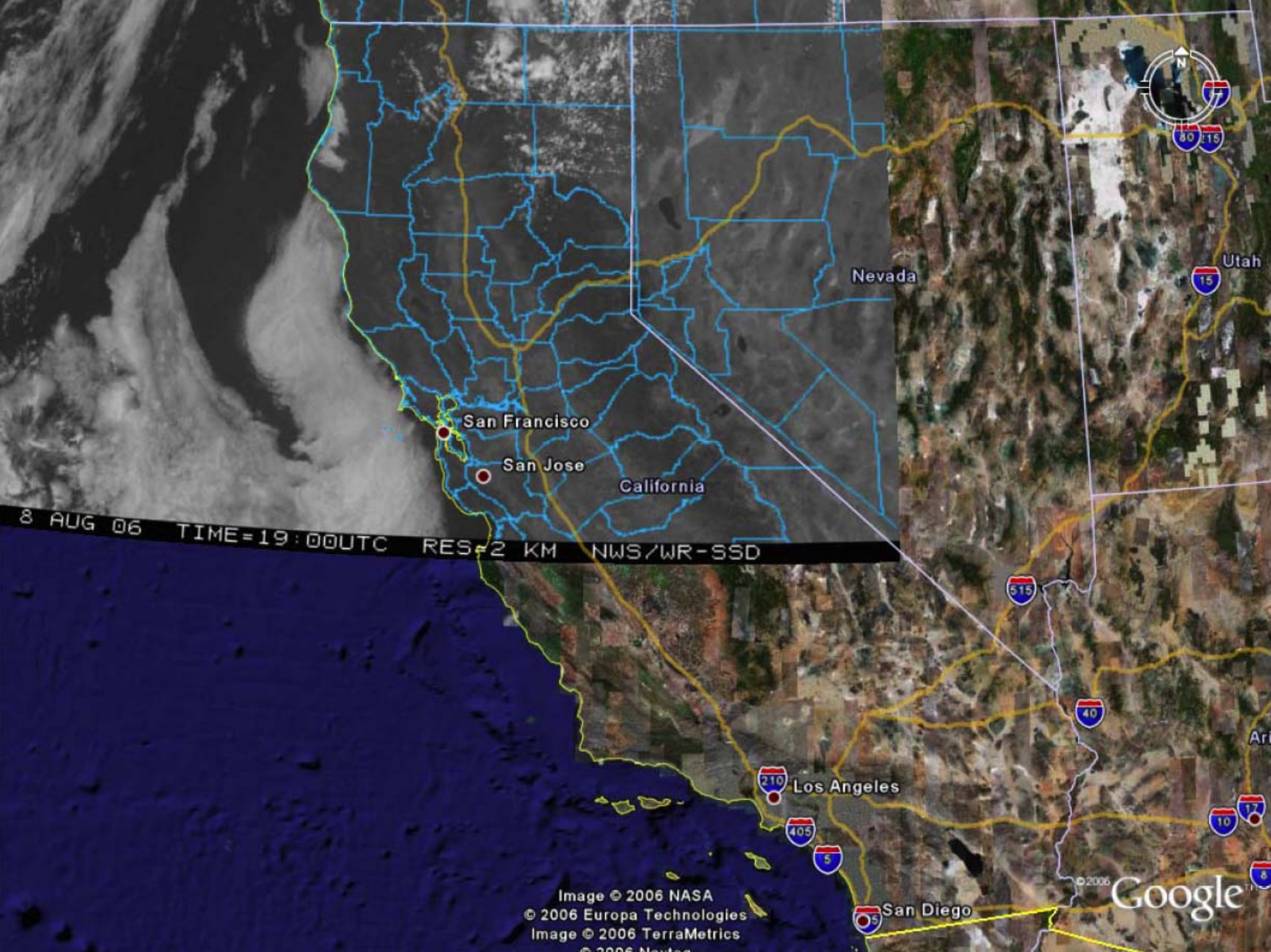


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Image © 2006 TerraMetrics
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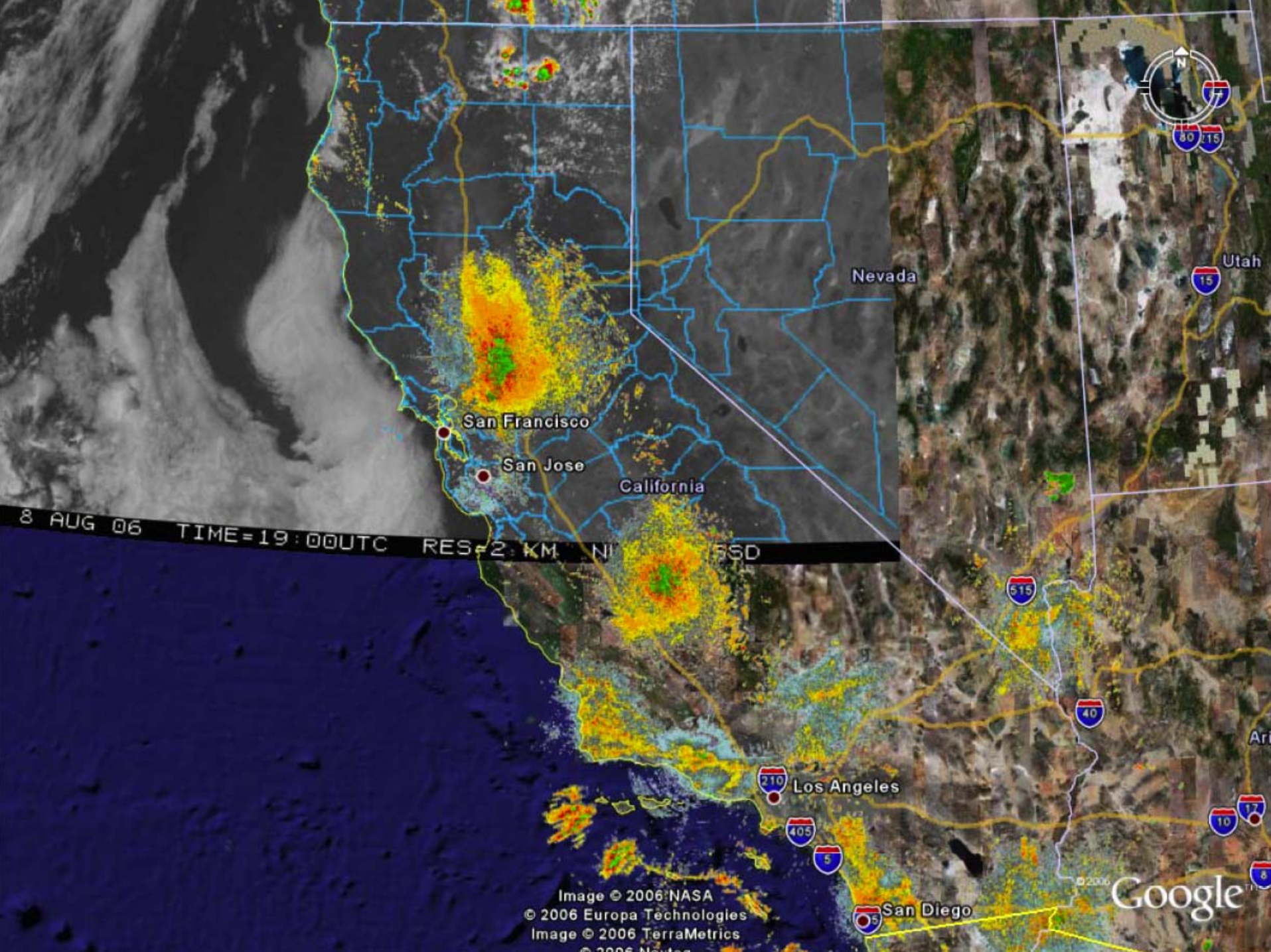
Google

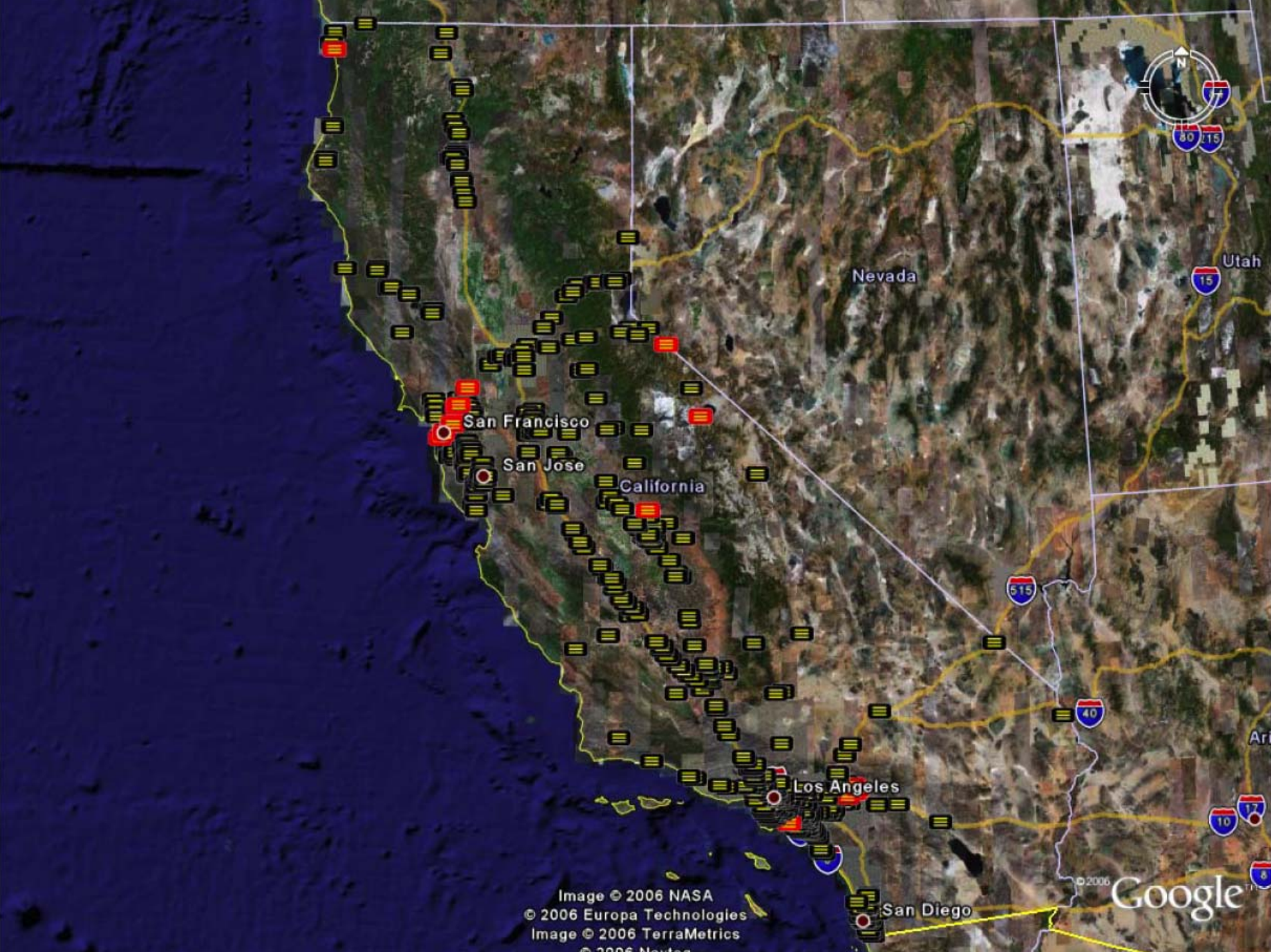


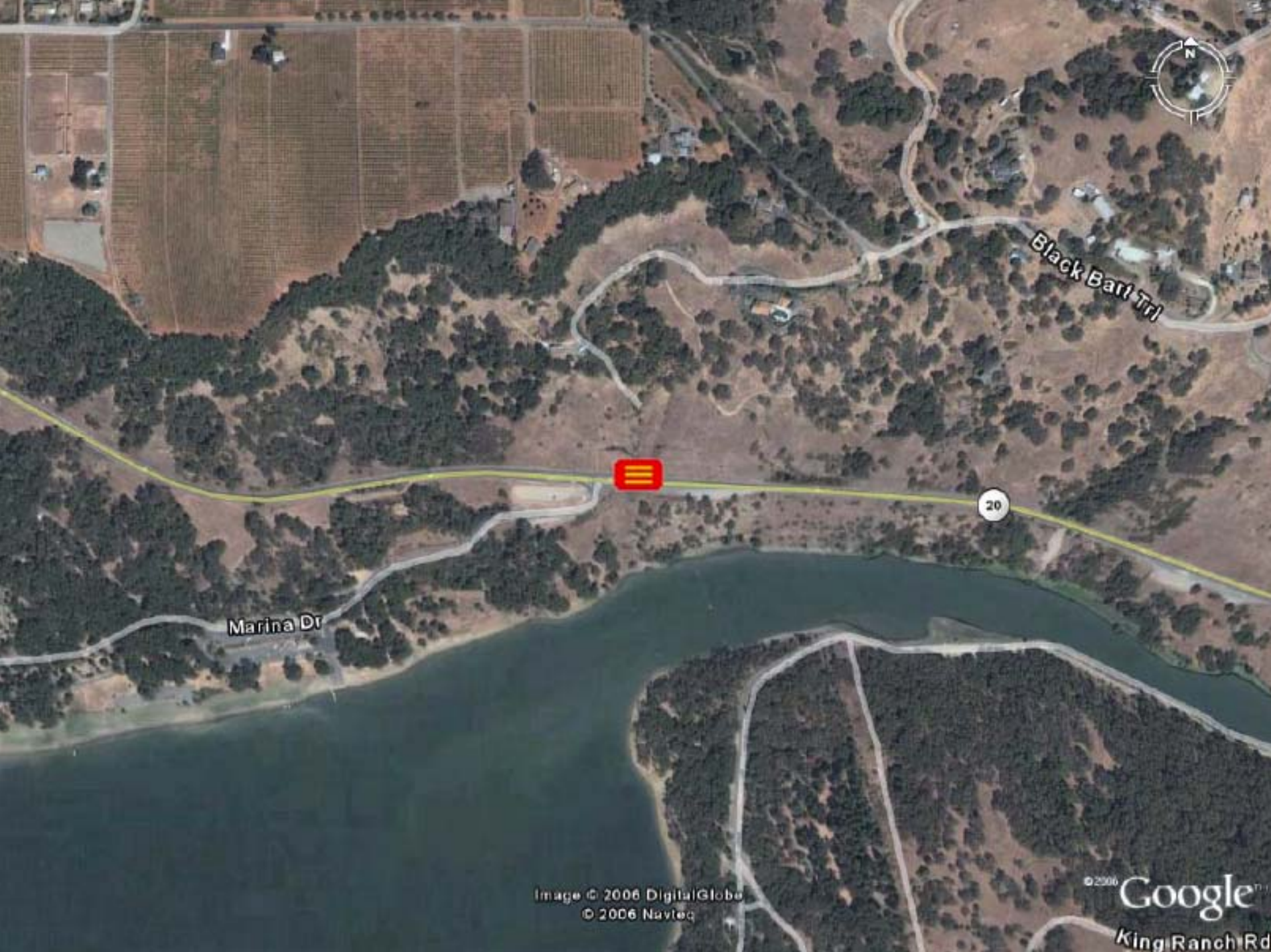
8 AUG 06 TIME=19:00UTC RES=2 KM NWS/WR-SSD

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Image © 2006 TerraMetrics
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Black Bart Trl

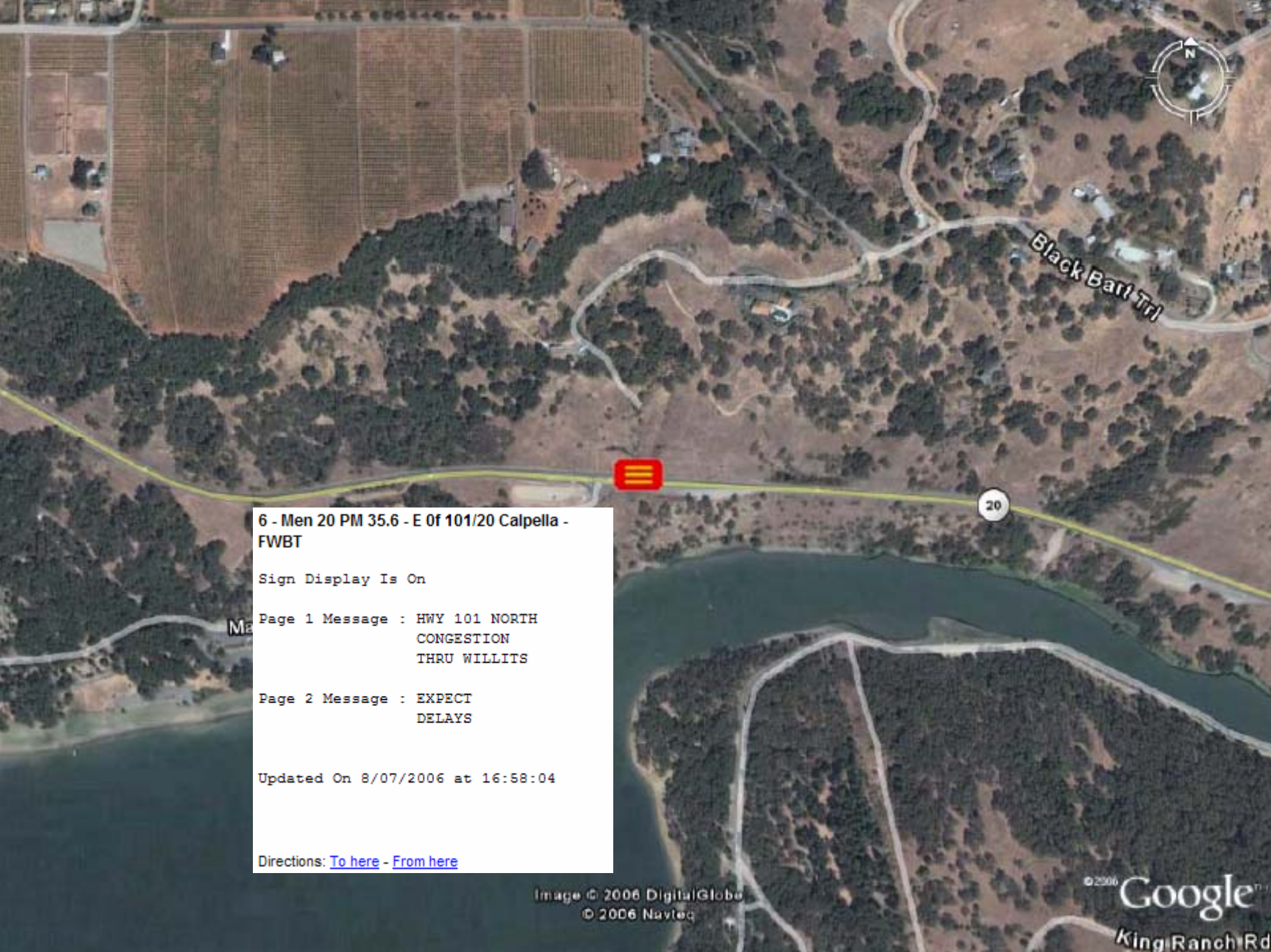
Marina Dr

20

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© 2006 Navteq

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King Ranch Rd



6 - Men 20 PM 35.6 - E Of 101/20 Calpella - FWBT

Sign Display Is On

Page 1 Message : HWY 101 NORTH
CONGESTION
THRU WILLITS

Page 2 Message : EXPECT
DELAYS

Updated On 8/07/2006 at 16:58:04

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

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King Ranch Rd



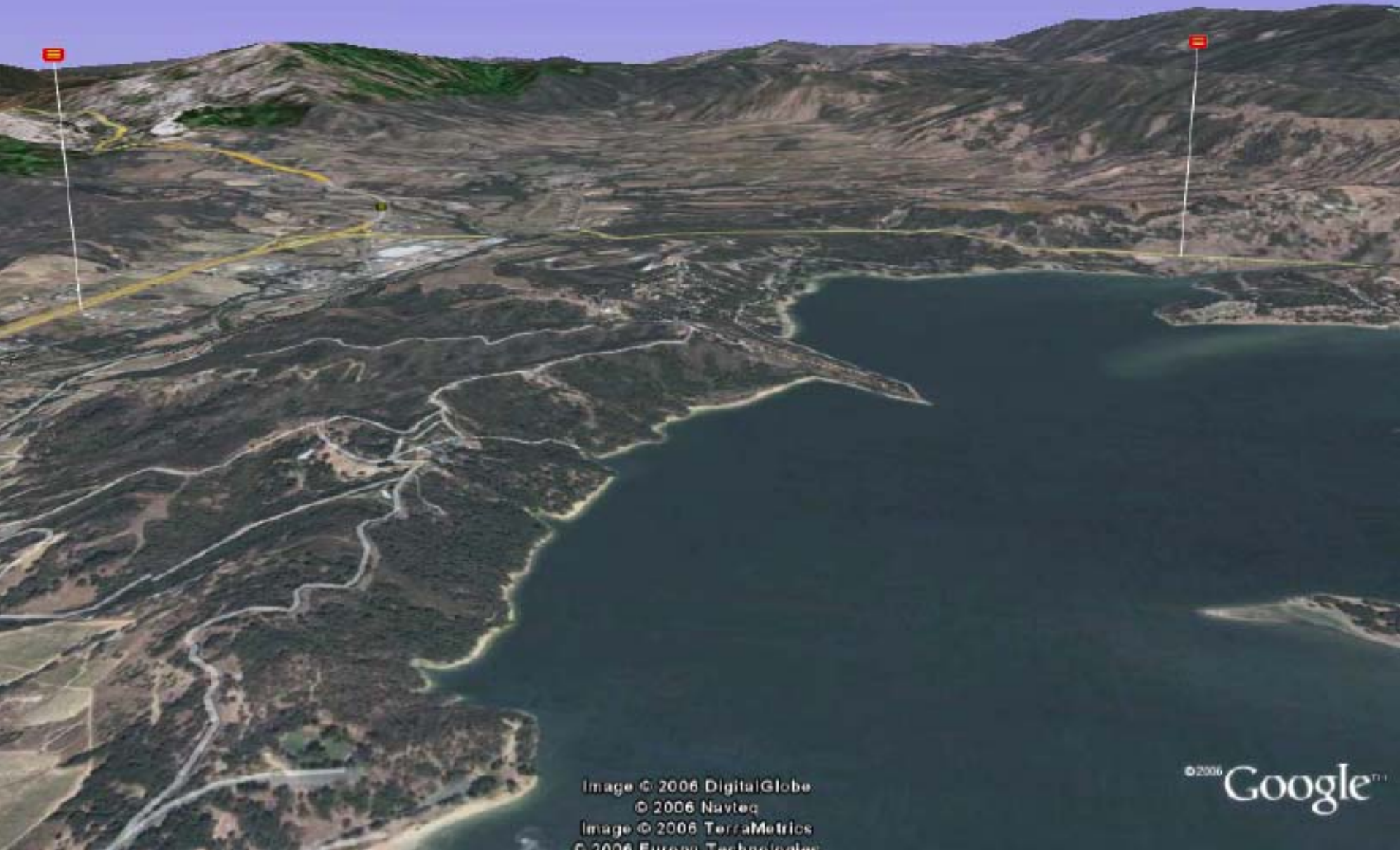


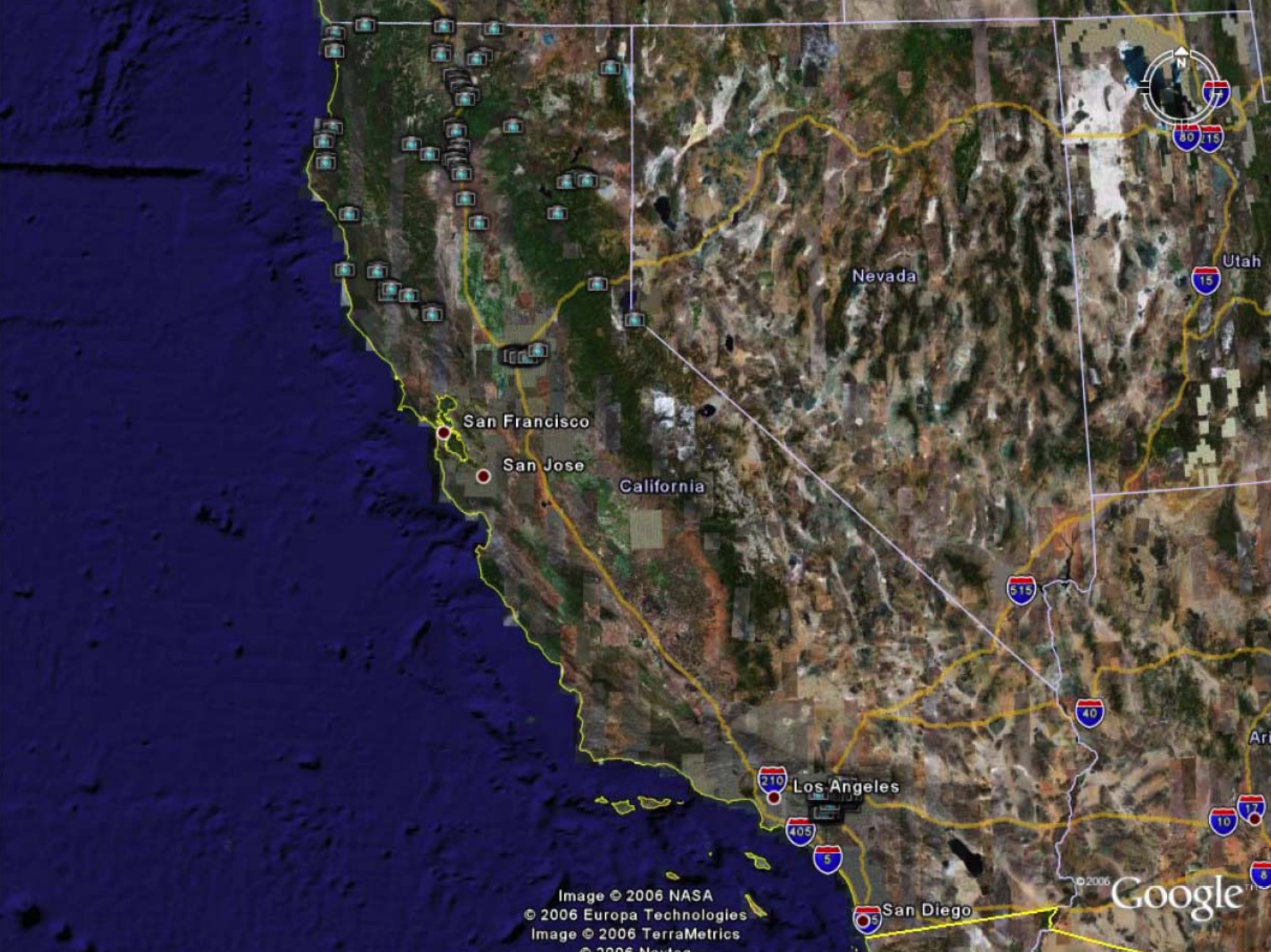
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99

I-5 : North Hilt

North Hilt Cam is Located on the North Side of Hilt on the East Side of I-5

NORTH HILT CCTV
PRESET 1



For The Latest Images At This Location :

<http://www.dot.ca.gov/dist2/cctv/nhilt8.shtml>

The preset value shown in the upper left hand corner of the image indicates the direction the camera is looking as follows:

Preset 1: Looking North	↑	Preset 2: Looking East	→
Preset 3: Looking South	↓	Preset 4: Looking West	←

NOTE: For preset values higher than four or if no preset value is shown, the CCTV is under command of a Transportation Management Center operator and no camera direction information can be provided.

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

North Hilt - Previous 8 Images - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Reload Home Search Favorites Links Go

Address http://www.dot.ca.gov/dist2/cctv/nhilt8.shtml

California Home Tuesday, August 8, 2006

Welcome to California

[District 2 Traveler Info](#)
[Local Roadside Information - RWIS](#)
[Chain Control Maps](#)
[District Map](#)
[Caltrans Realtime Freeway Speed Map](#)
[Feedback Form](#)
[Caltrans Home](#)

[View All Traffic Cameras](#)



[Caltrans](#) > [District 2](#) > [Traffic Cams](#) > [North Hilt Traffic Camera](#) > Previous 8 Images - Camera Problems? Click [here](#)

search
My CA This Site

North Hilt Traffic Cam - Previous 8 Images

District 2 - North Hilt Cam is Located on the North Side of Hilt on the East Side of I-5 in Siskiyou County

Tuesday, 08-Aug-2006 08:59:48 PDT 	Tuesday, 08-Aug-2006 08:29:49 PDT 
Tuesday, 08-Aug-2006 07:59:50 PDT 	Tuesday, 08-Aug-2006 07:29:49 PDT 
Tuesday, 08-Aug-2006 06:59:50 PDT 	Tuesday, 08-Aug-2006 06:29:48 PDT 

Internet



I-5 : North Hilt

North Hilt Cam is Located on the North Side of Hilt on the East Side of I-5



For The Latest Images At This Location :

<http://www.dot.ca.gov/dist2/cctv/nhilt8.shtml>

The preset value shown in the upper left hand corner of the image indicates the direction the camera is looking as follows:

Preset 1: Looking North	↑	Preset 2: Looking East	→
Preset 3: Looking South	↓	Preset 4: Looking West	←

NOTE: For preset values higher than four or if no preset value is shown, the CCTV is under command of a Transportation Management Center operator and no camera direction information can be provided.

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

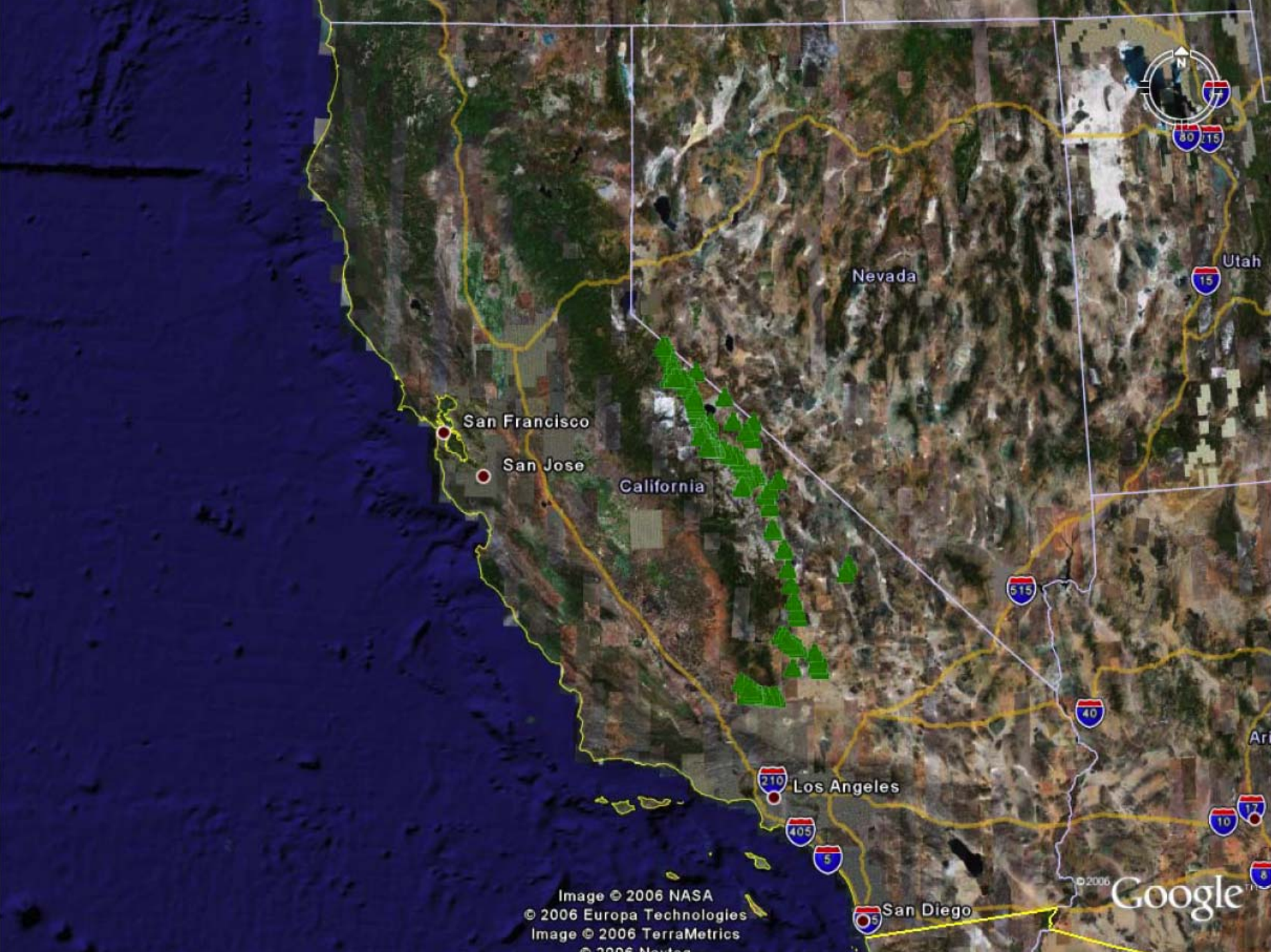
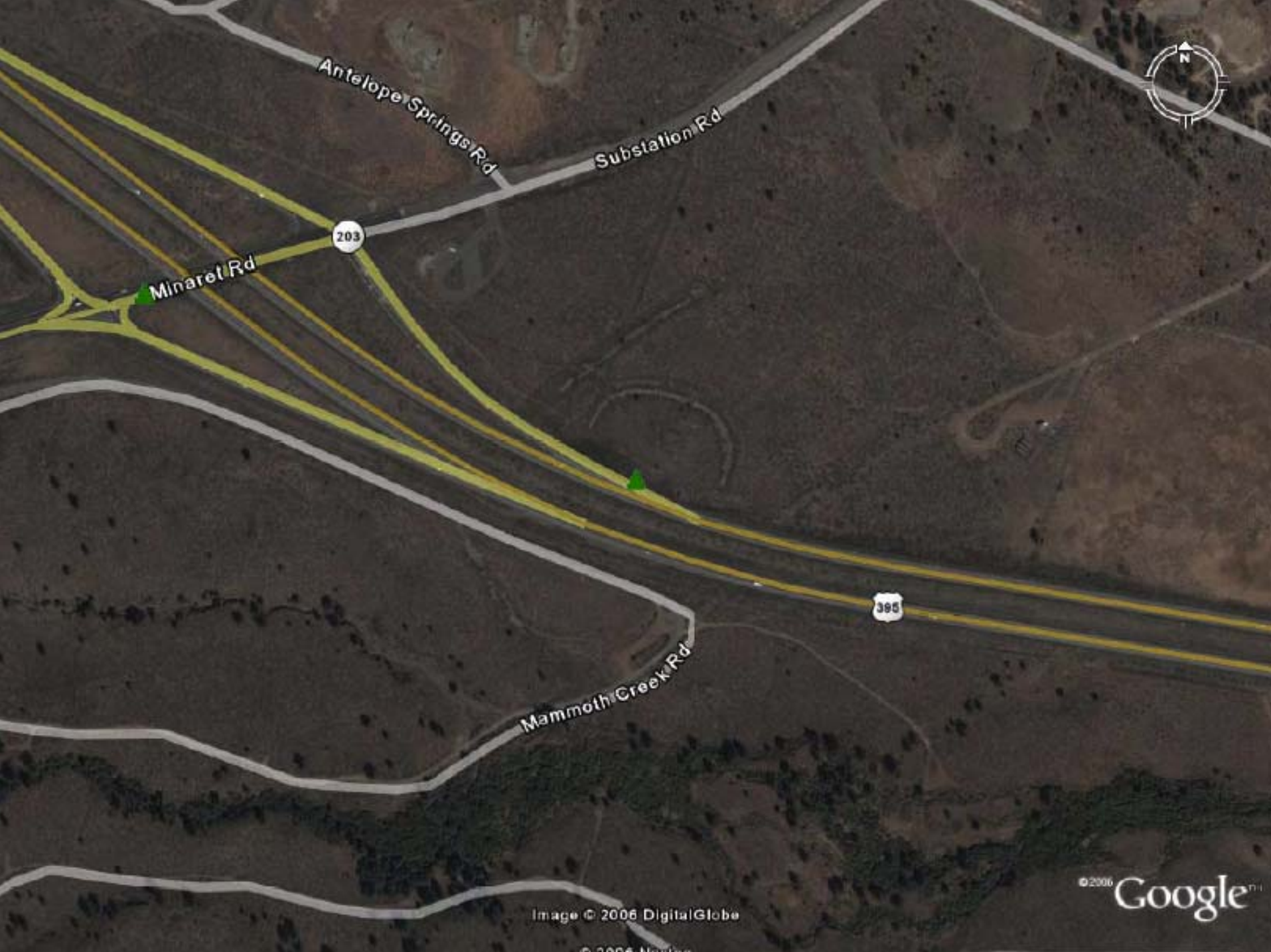


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Antelope Springs Rd

Substation Rd

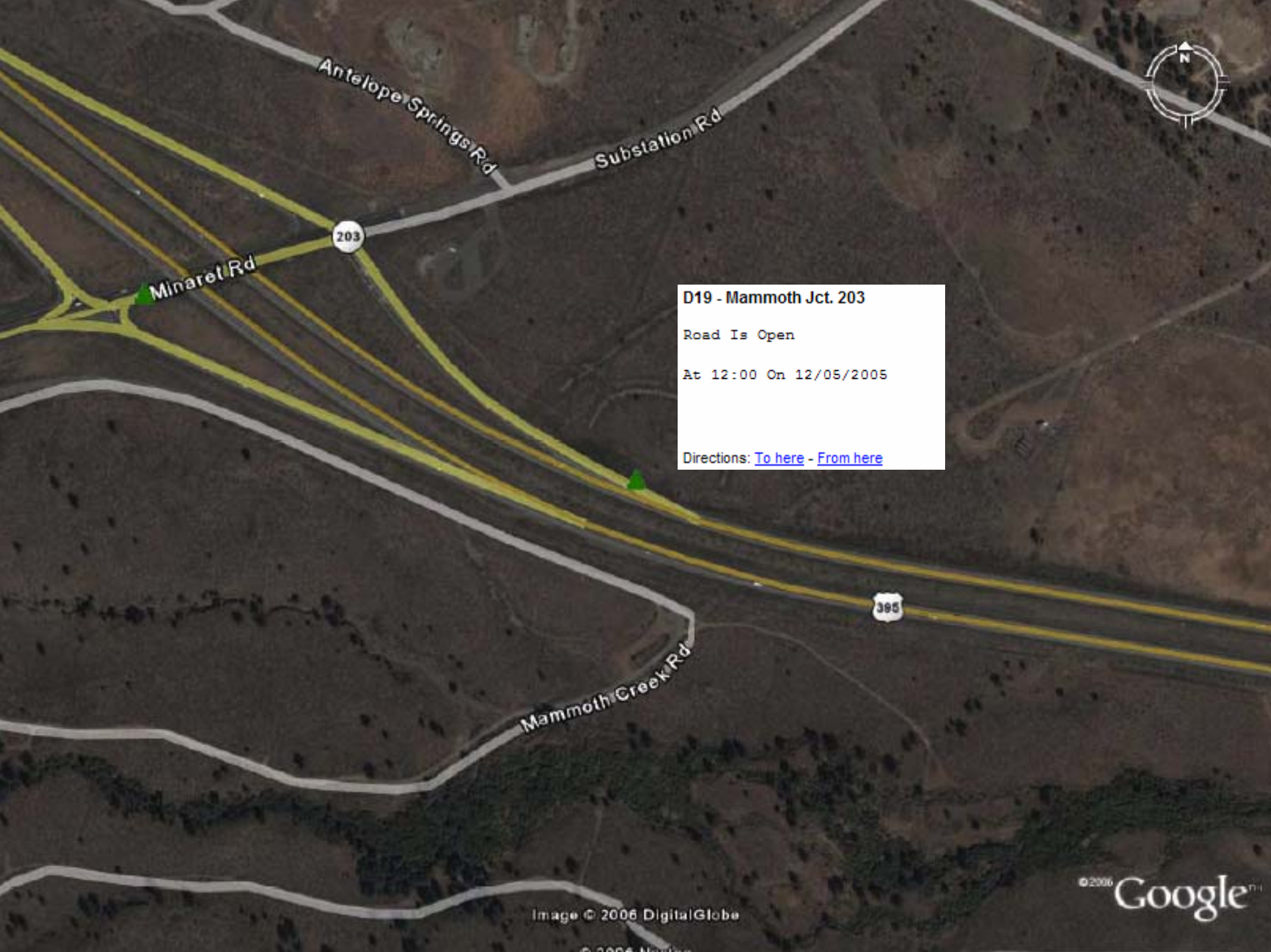
203

Minaret Rd

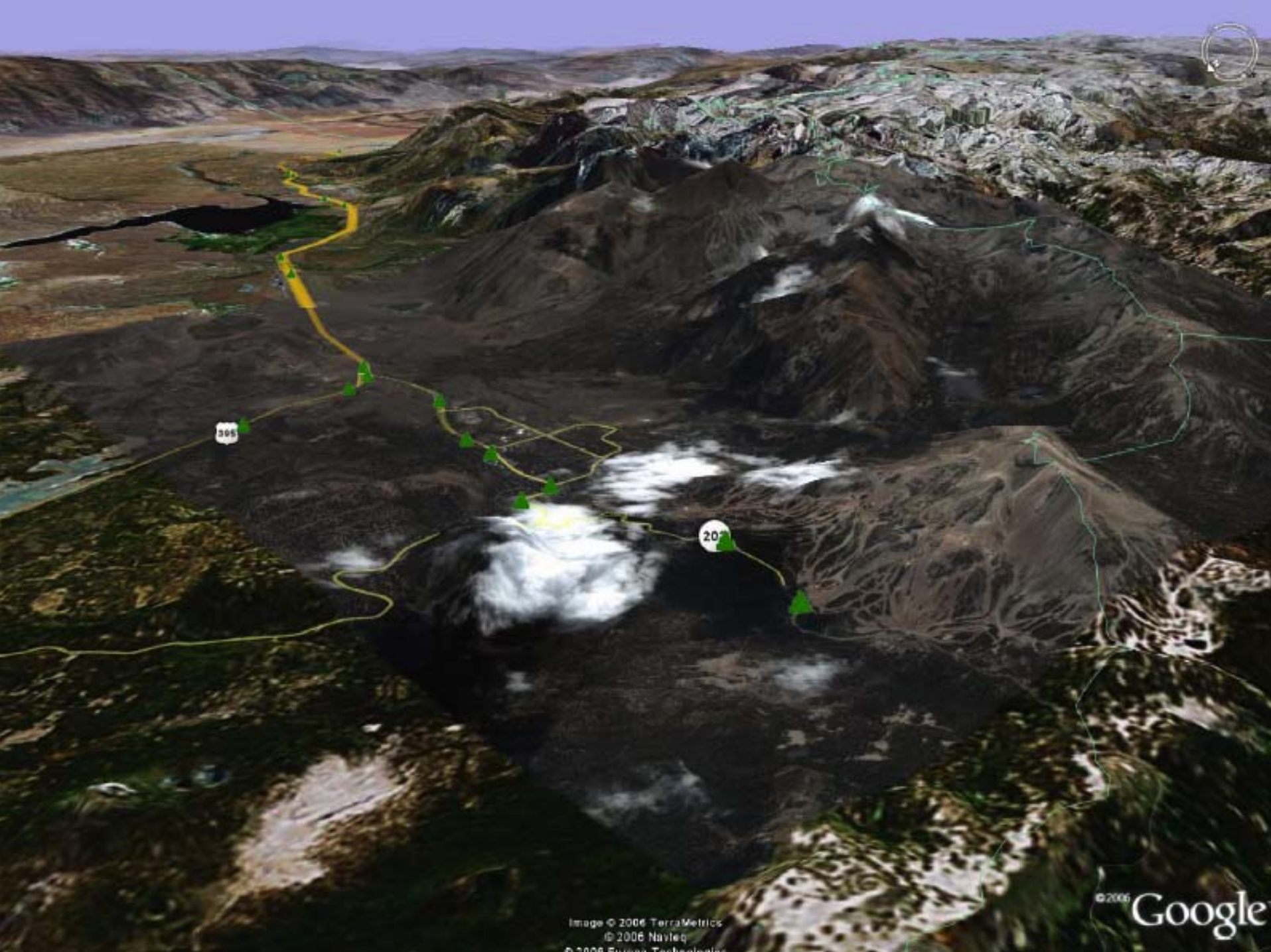
395

Mammoth Creek Rd

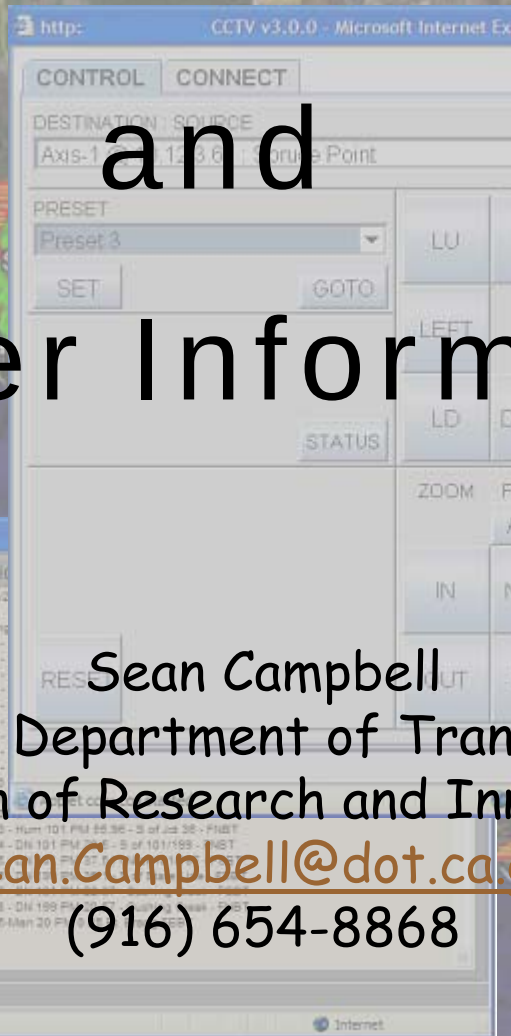




D19 - Mammoth Jct. 203
Road Is Open
At 12:00 On 12/05/2005
Directions: [To here](#) - [From here](#)



Web Based ITS Field Element Control and Traveler Information



Sean Campbell
California Department of Transportation
Division of Research and Innovation

Sean.Campbell@dot.ca.gov
(916) 654-8868