

TEXAS II

AIS Analysis “Results” AIS Standards Activities

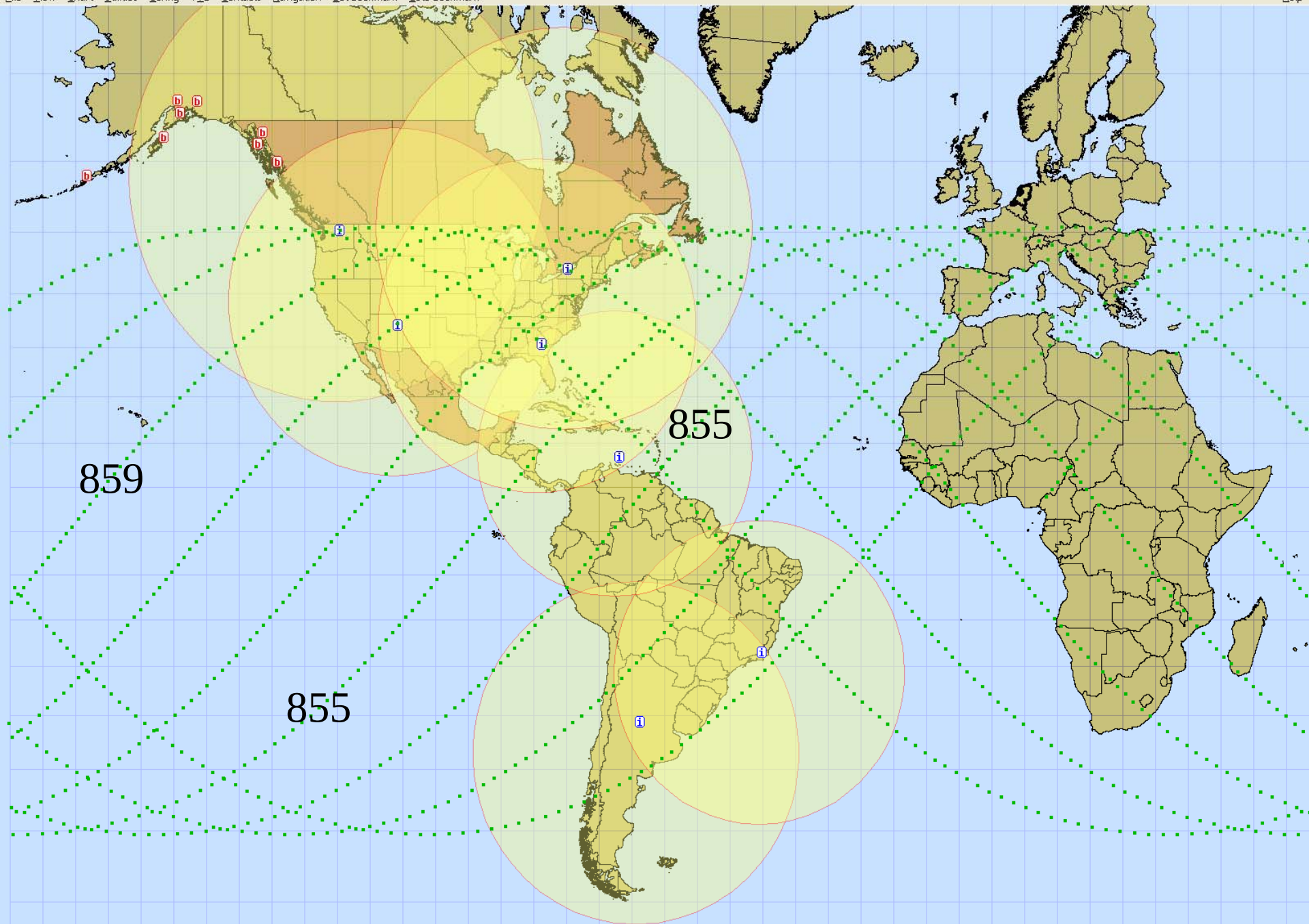
David Pietraszewski

U. S. C. G. Research and Development Center

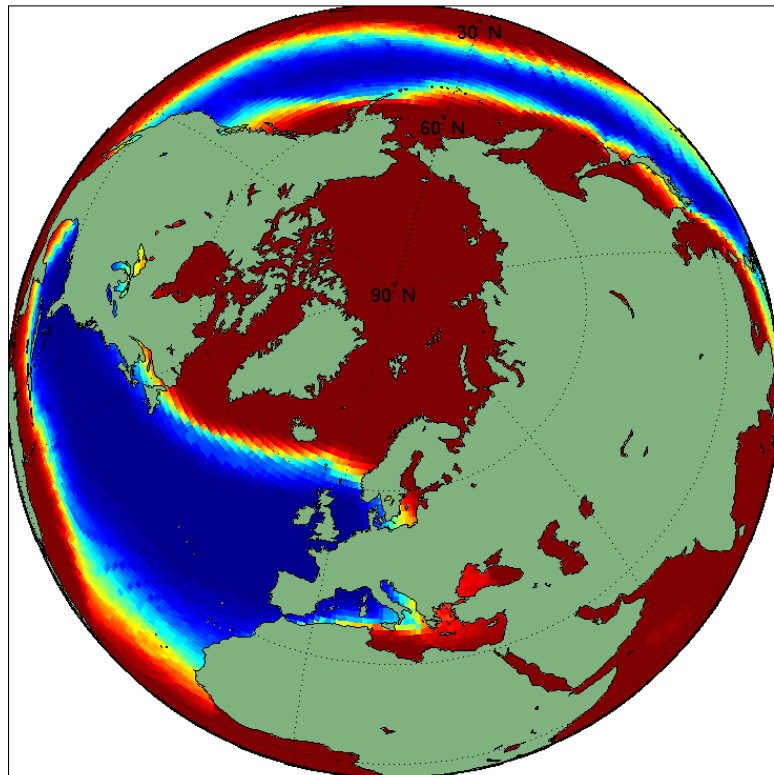
dski@radioaid.rdc.uscg.gov

September 4, 2008

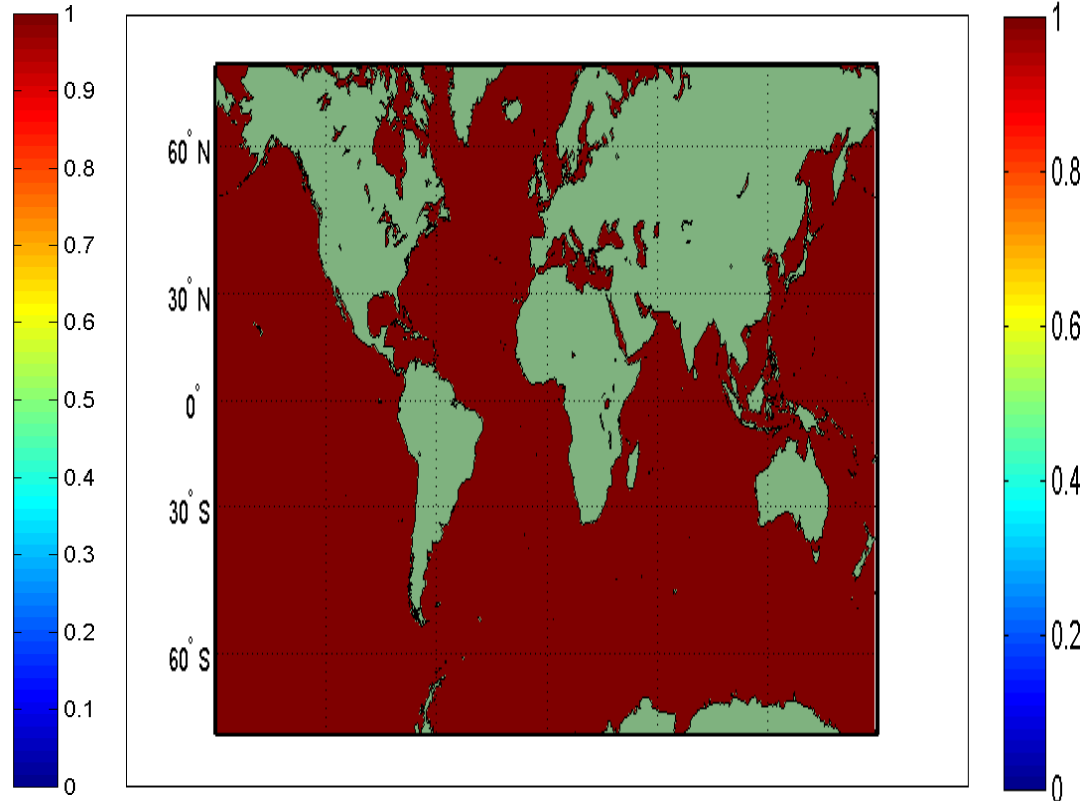
Report Documentation Page				Form Approved OMB No. 0704-0188	
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1. REPORT DATE 2008		2. REPORT TYPE N/A		3. DATES COVERED -	
4. TITLE AND SUBTITLE AIS Analysis Results AIS Standards Activities				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U. S. C. G. Research and Development Center				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release, distribution unlimited					
13. SUPPLEMENTARY NOTES The original document contains color images.					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UU	18. NUMBER OF PAGES 41	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			



Daily Space-based AIS Detection Probability



“AIS as is”

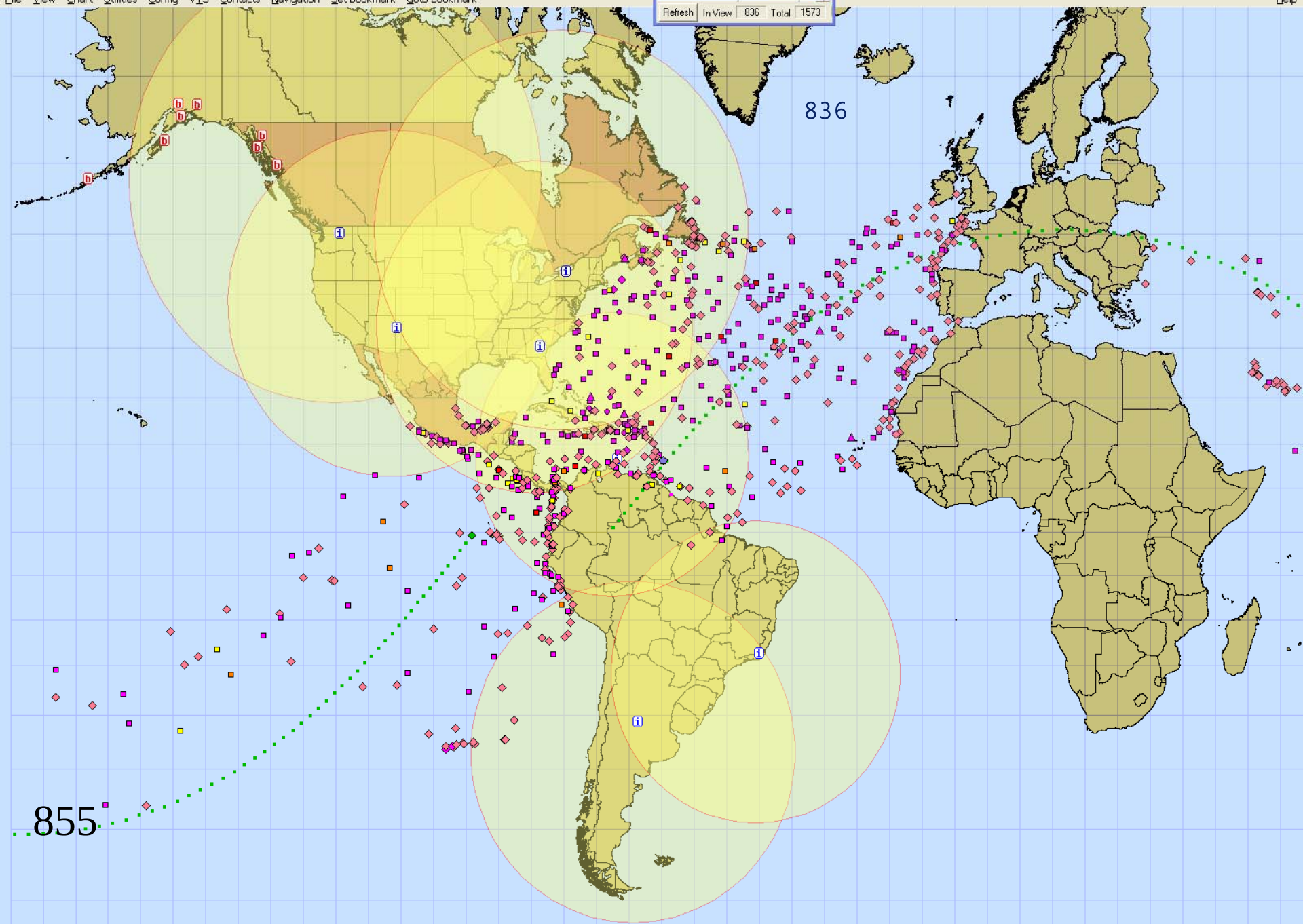


3rd frequency



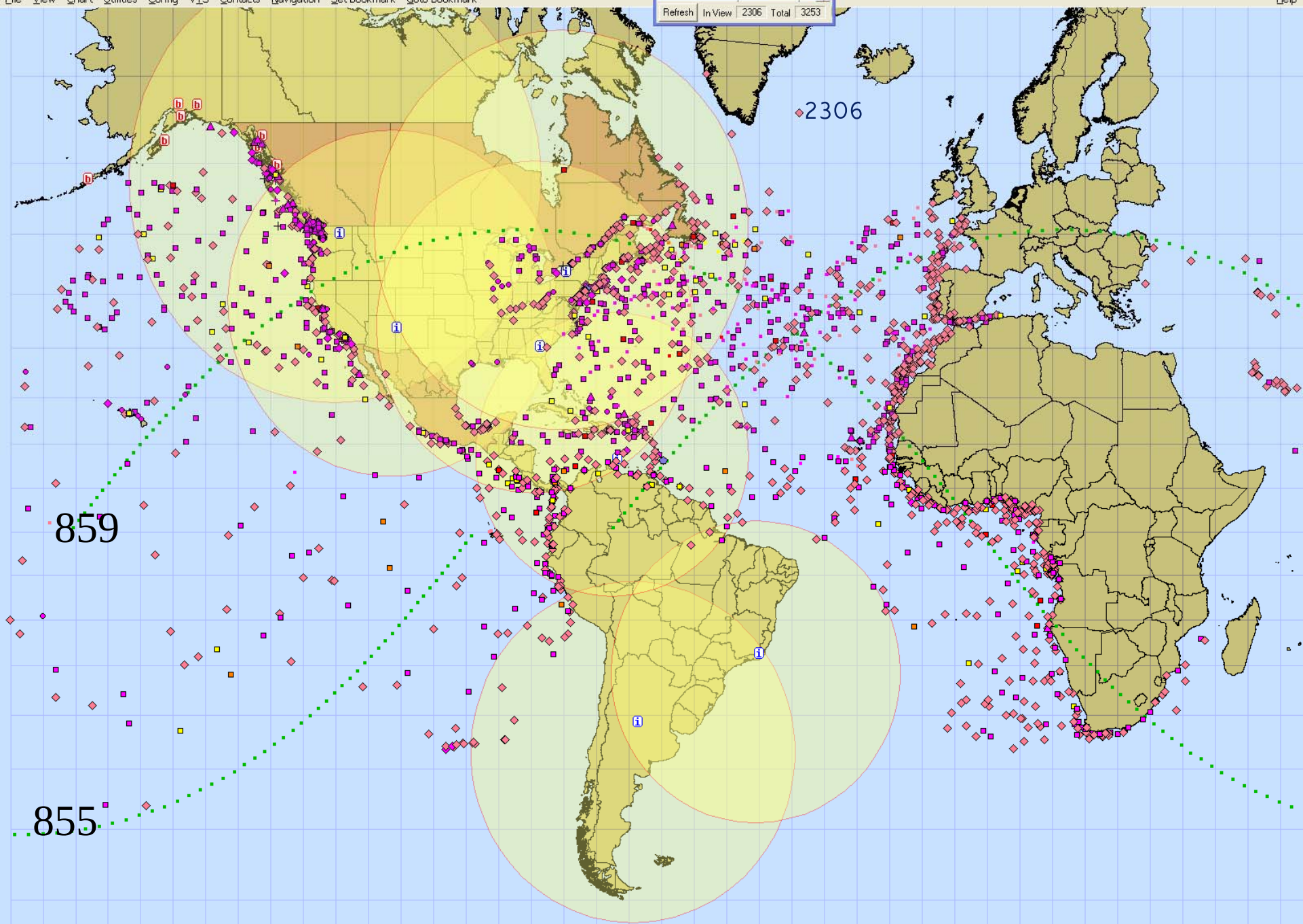
Vessel List

Refresh In View 836 Total 1573



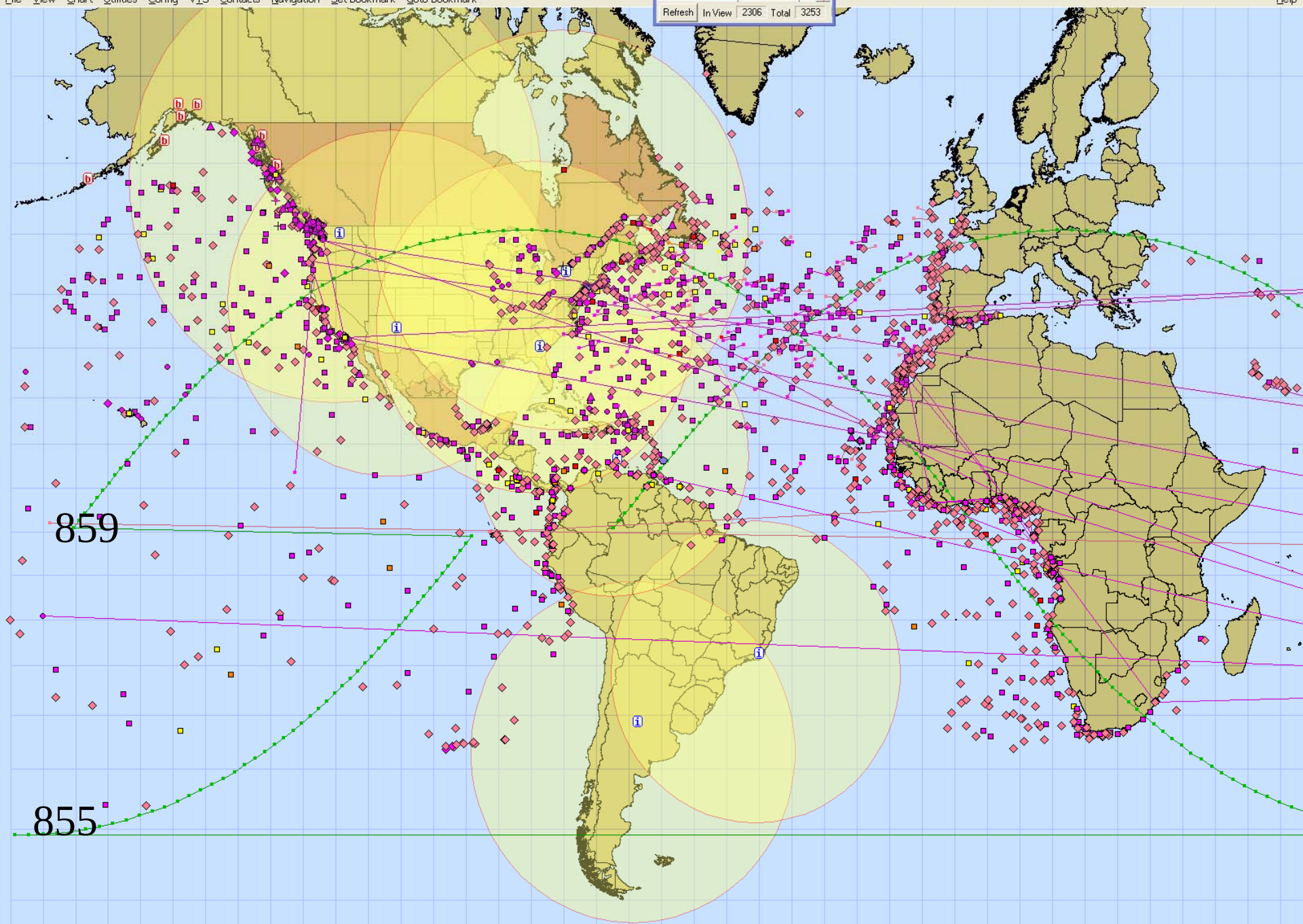
Vessel List

Refresh In View 2306 Total 3253



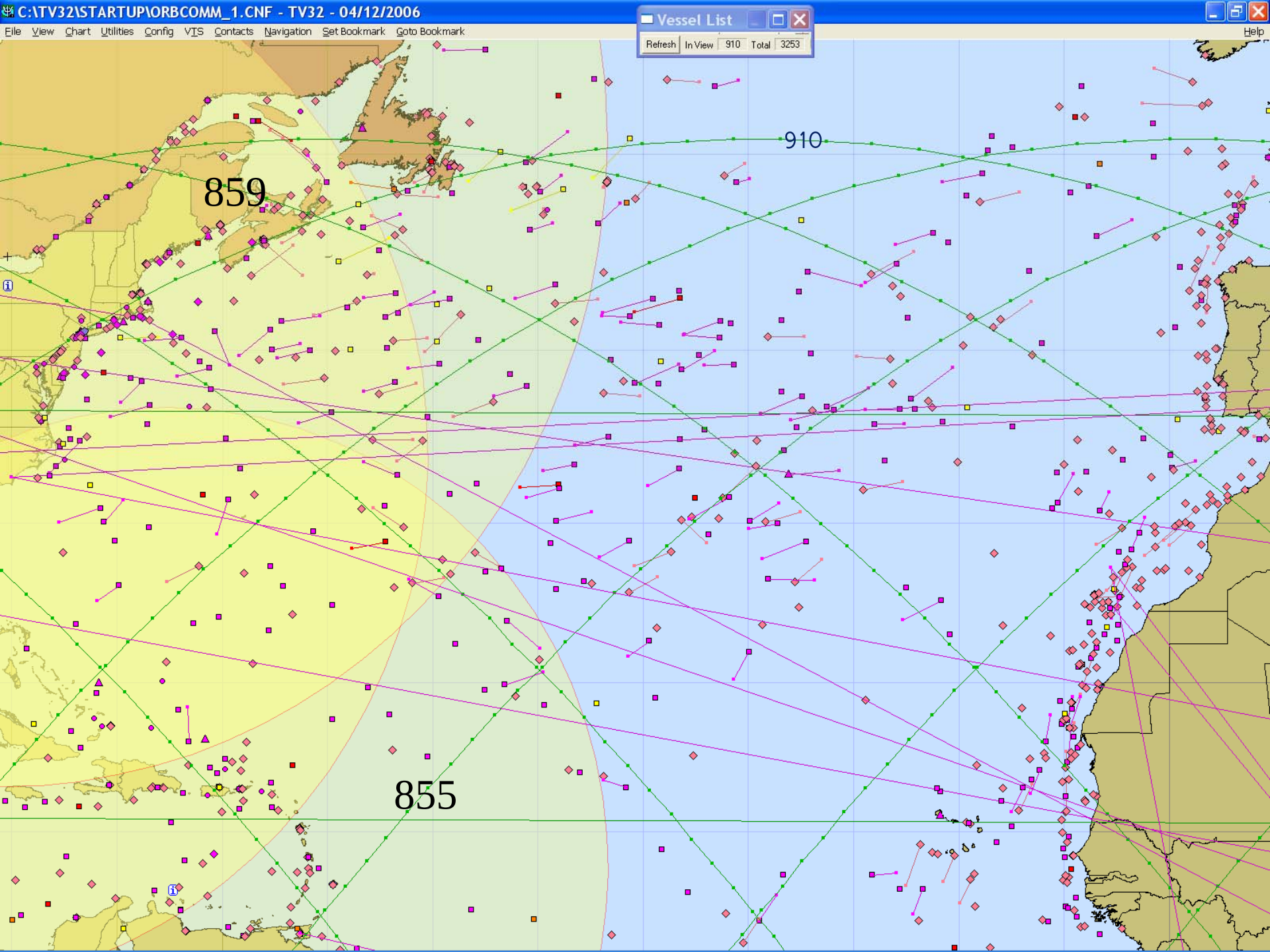
Vessel List

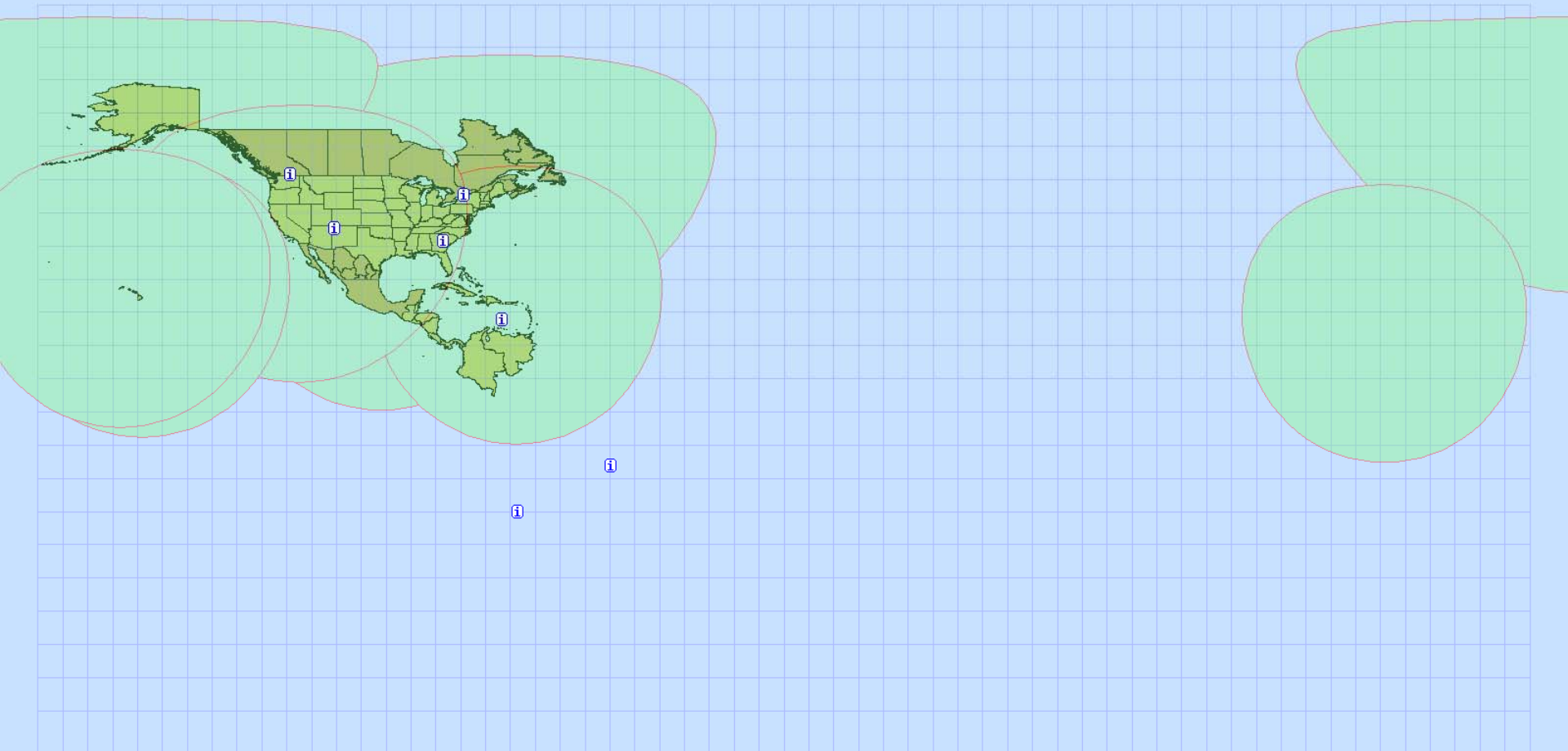
Refresh In View 2306 Total 3253

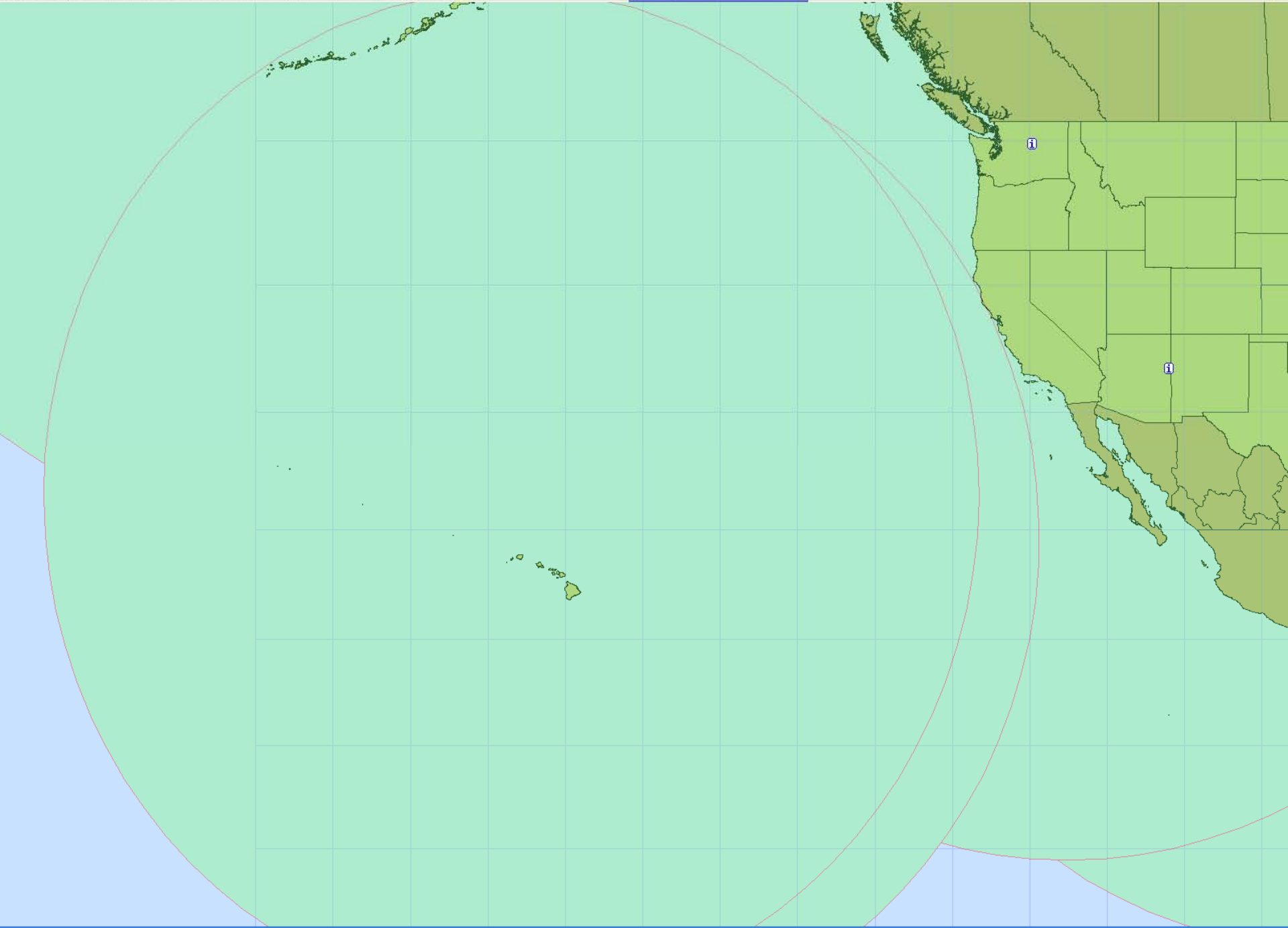


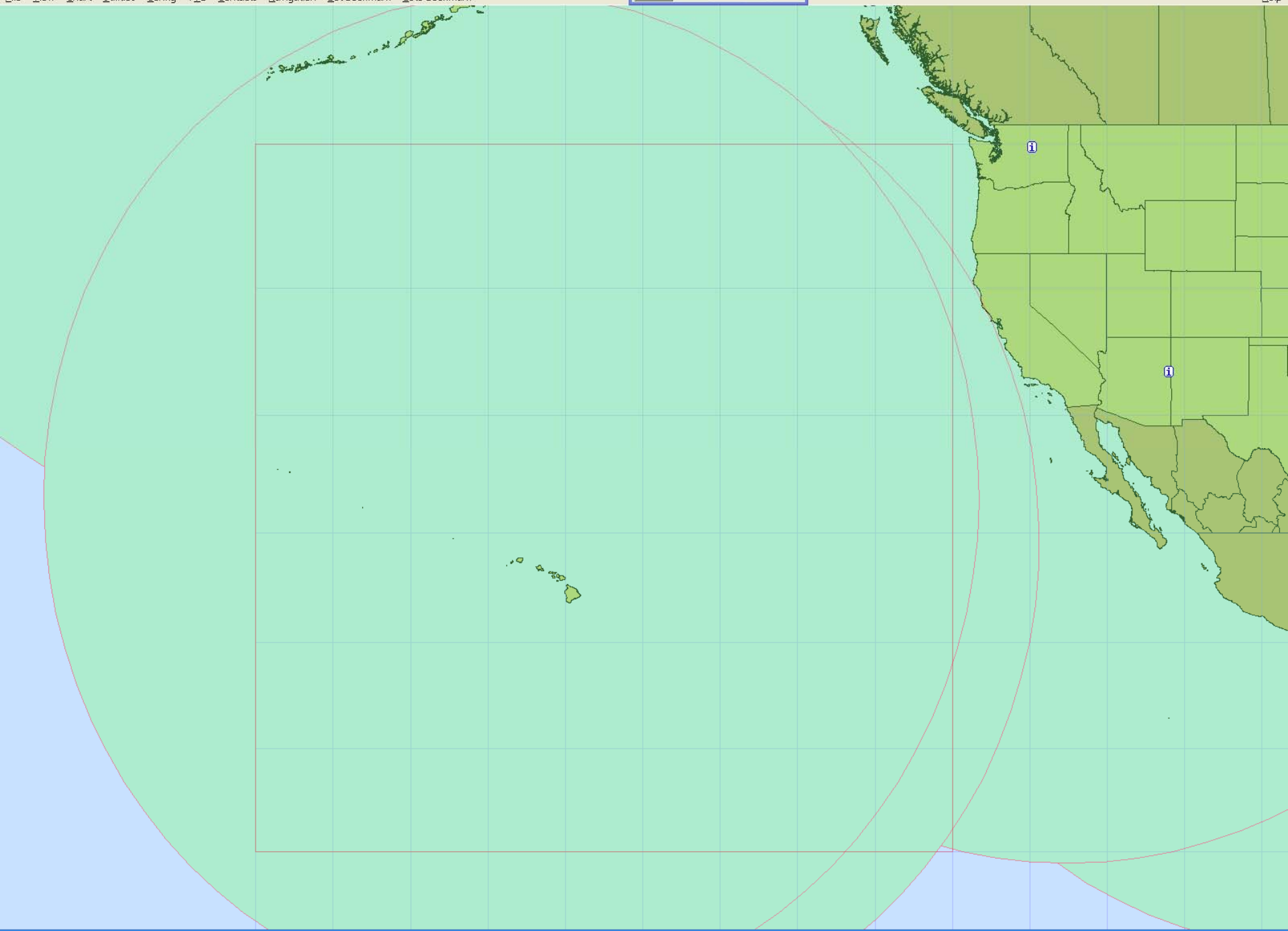
Vessel List

Refresh In View 910 Total 3253

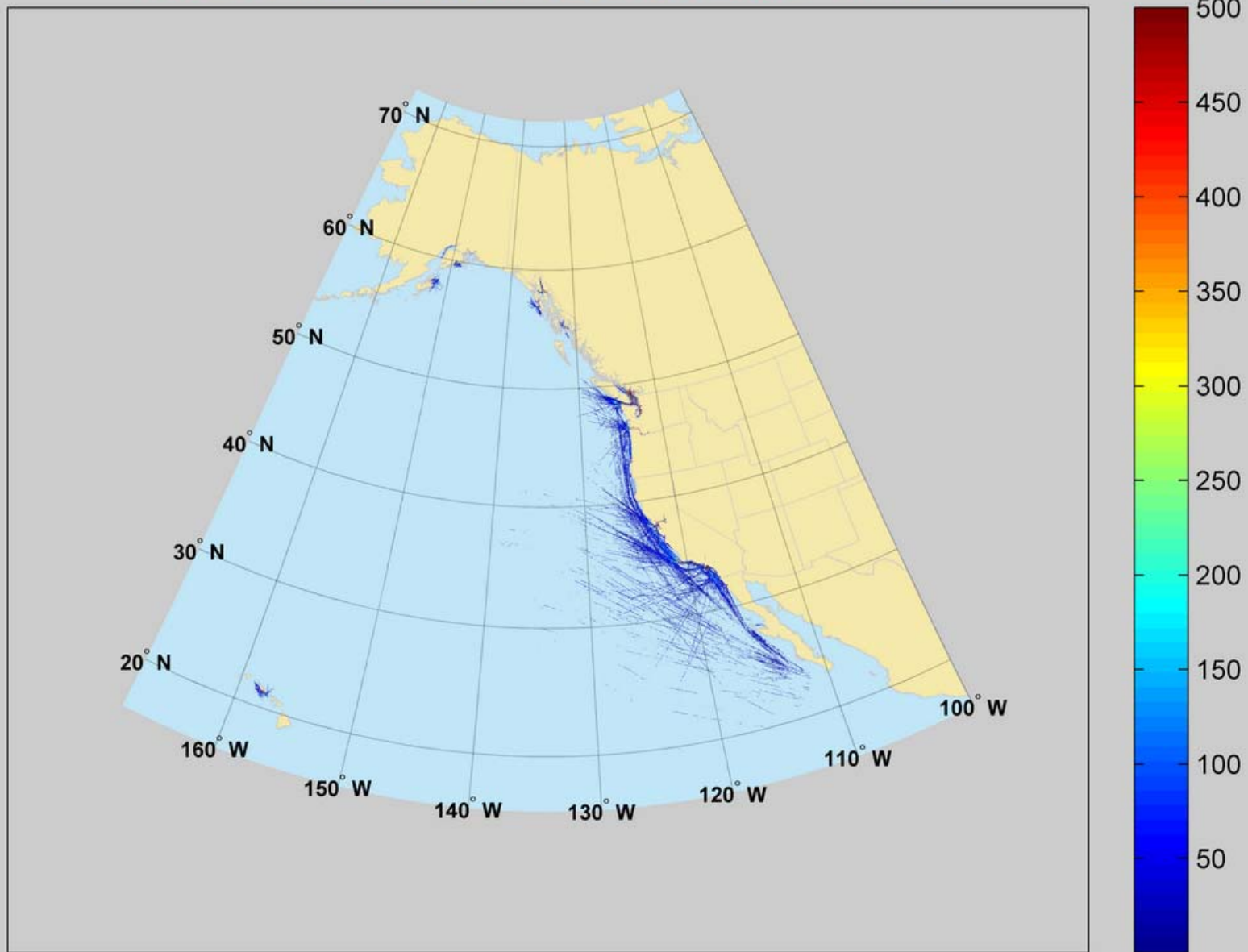








West Coast Report Counts, Days 17 - 24



- Submit News
- Administration
- Member List
- Statistics
- Statistics (Advanced)

USCG RDC - AIS

- Help/Information
- + Previous Months
- + Current

22

NAIS

- + Previous Months
- + Current
- + Comparison Analysis

79

VTS & Hawkeye

- + Previous Months
- + Current

53

SPAIS

- + Previous Months
- + Current

17

St Lawrence Seaway

- + Previous Months
- + Current

9

Older user logins such as RCDuser are now disabled for this website. Please follow the registration instructions below to regain access to the Analysis Website.

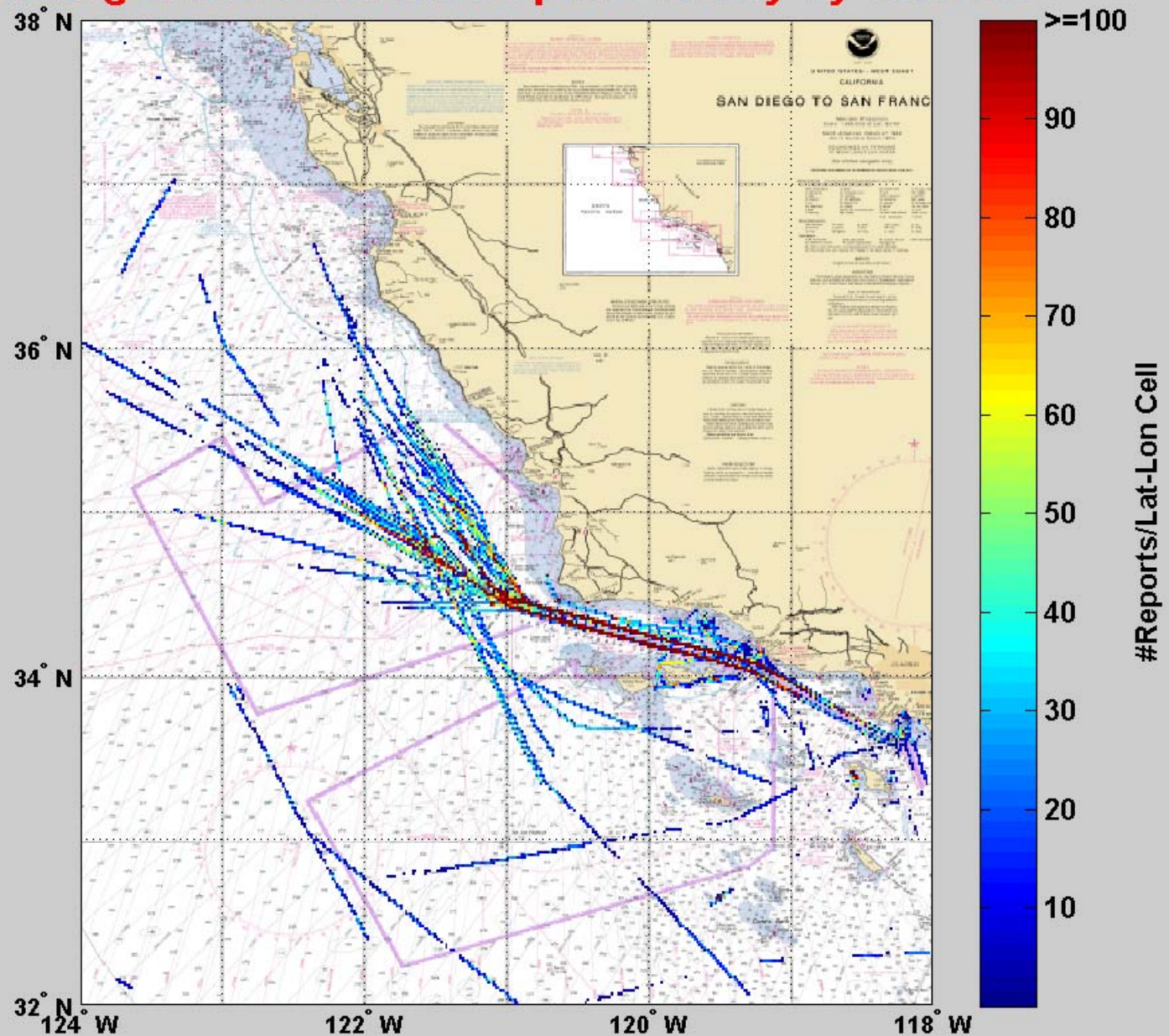
To register, please follow the instructions below.

Logging into the Coast Guard R&D Center for the First Time?

1. Click "Sign Up!" link. (Left side screen, below "Log in Problems?")
2. Click "Register." link.
3. Enter your new login name in the edit box provided.
4. Enter your E-mail address in the edit box provided.
5. Enter your name.
6. Click the "New User" button.
7. At this point, a temporary password will be sent to the e-mail account you provided in Step 4. Check this email to obtain your login and password. (This is a manual process. Please allow for a delay of several days.)
8. once you have received your login and password, go back to the Coast Guard R&D Center website and login.



20 Aug 2008 r11NTRQ1 Report Density by Lat/Lon



- Forums
- News
- Contact
- My Account
- Logout

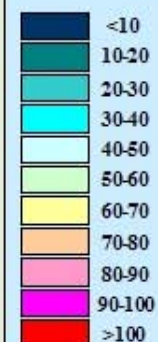
Haleakala, HI Site Performance

[Back to Site Index](#)

Single Receiver
Site Options:

[r993689982](#)

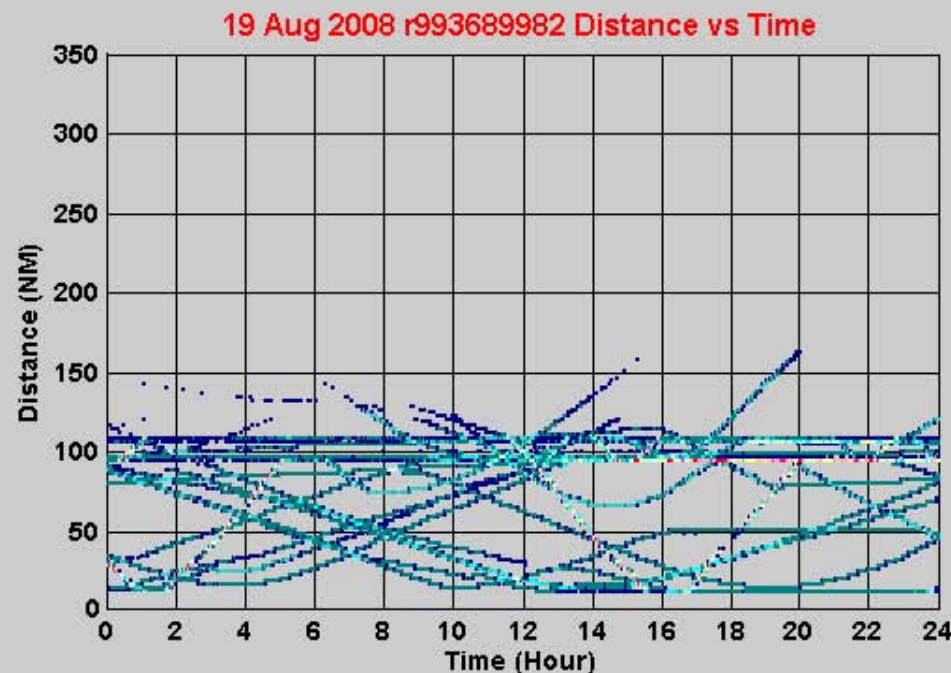
Distance vs Time
Color Codes



Received
reports
in
2nmi x 3min
"blocks."

Day,
or scroll:

[27](#) [28](#) [29](#) [30](#) [31](#)



19 Aug 2008 Vessel Count: 46

Mean Distance (nmi): 67.8547

Max Distance (nmi): 163.98

3 Minute Gap Count: N/A Total Time Gaps: 0

Total Cells with Reports: 2052

Administrative Menu

- Submit News
- Administration
- Member List
- Statistics
- Statistics (Advanced)

USCG RDC - AIS

Help/Information

Previous Months

Area Performance

Site Performance

Current

NAIS

Previous Months

Area Performance

Site Performance

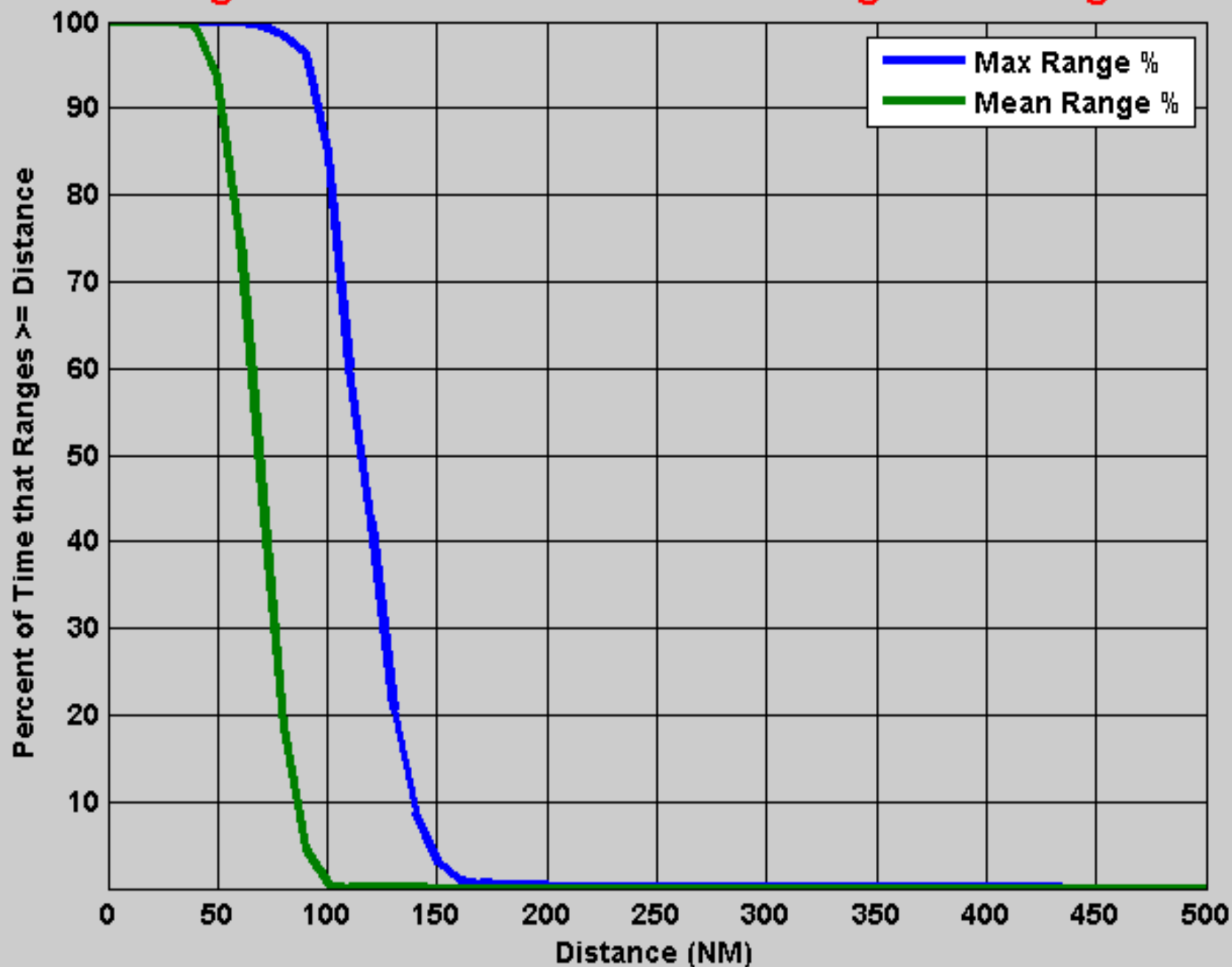
Current

Comparison Analysis

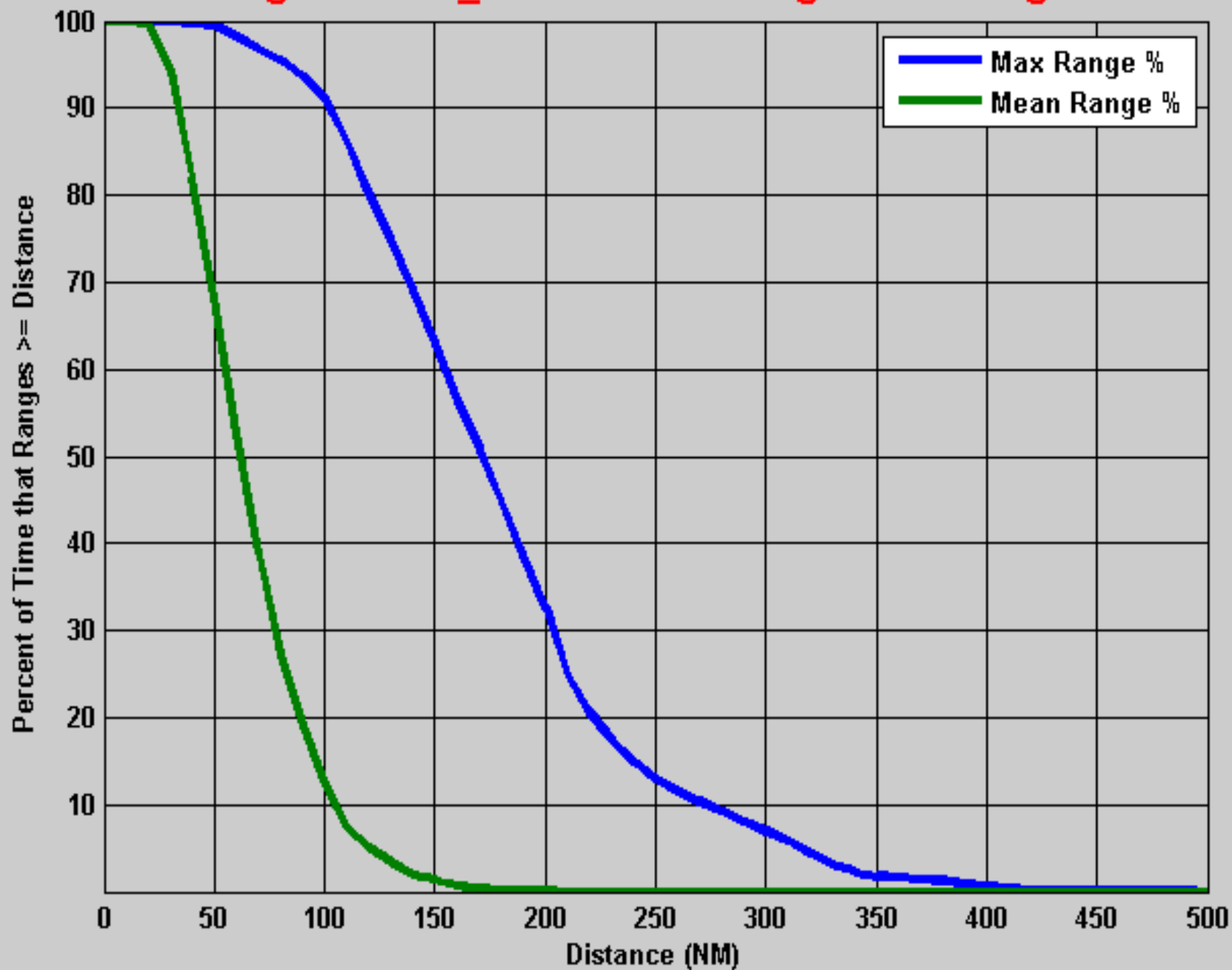
Previous Months

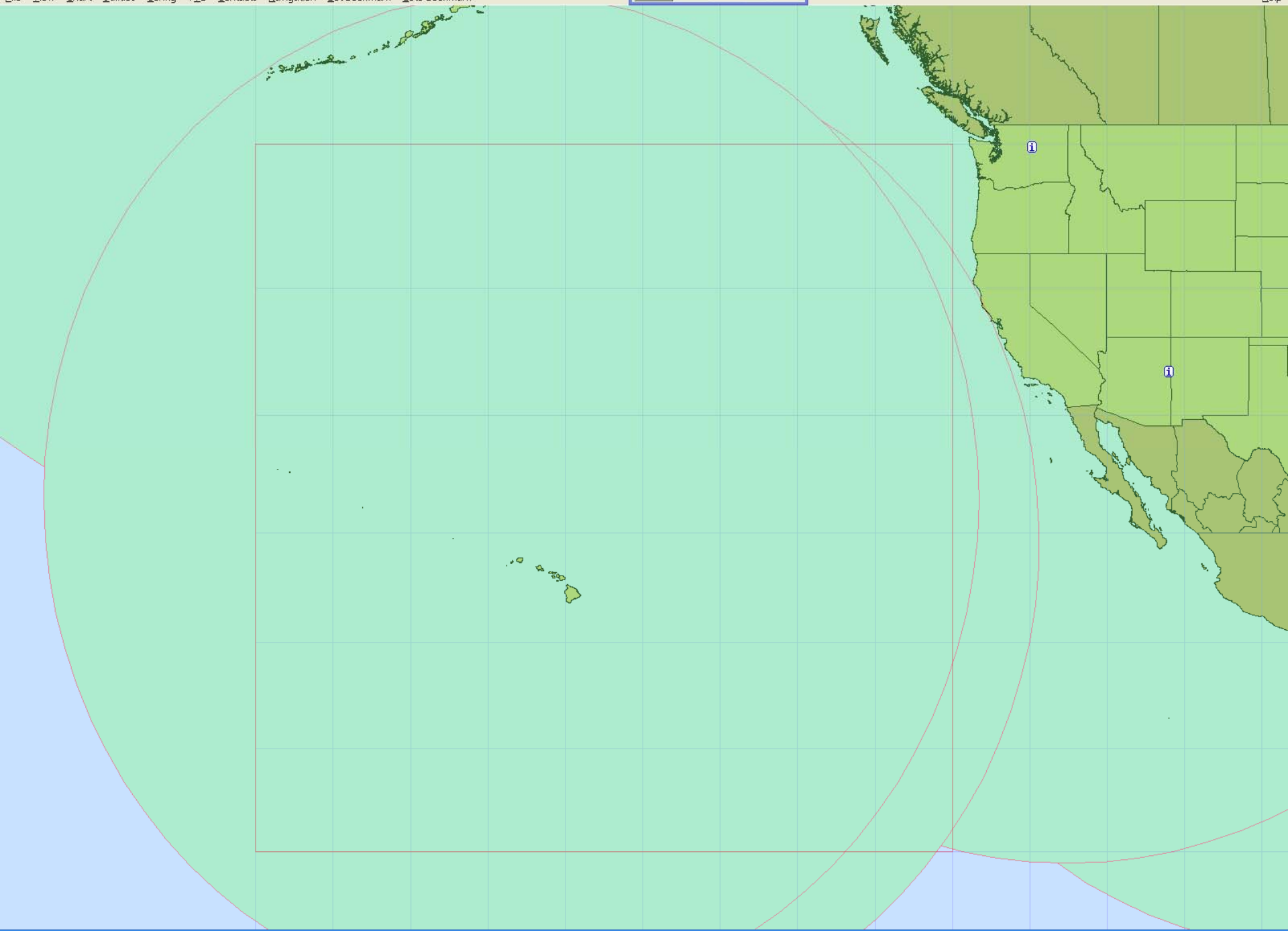
Current Month

Aug 2008 r993689982 Mean/Max Range Percentages

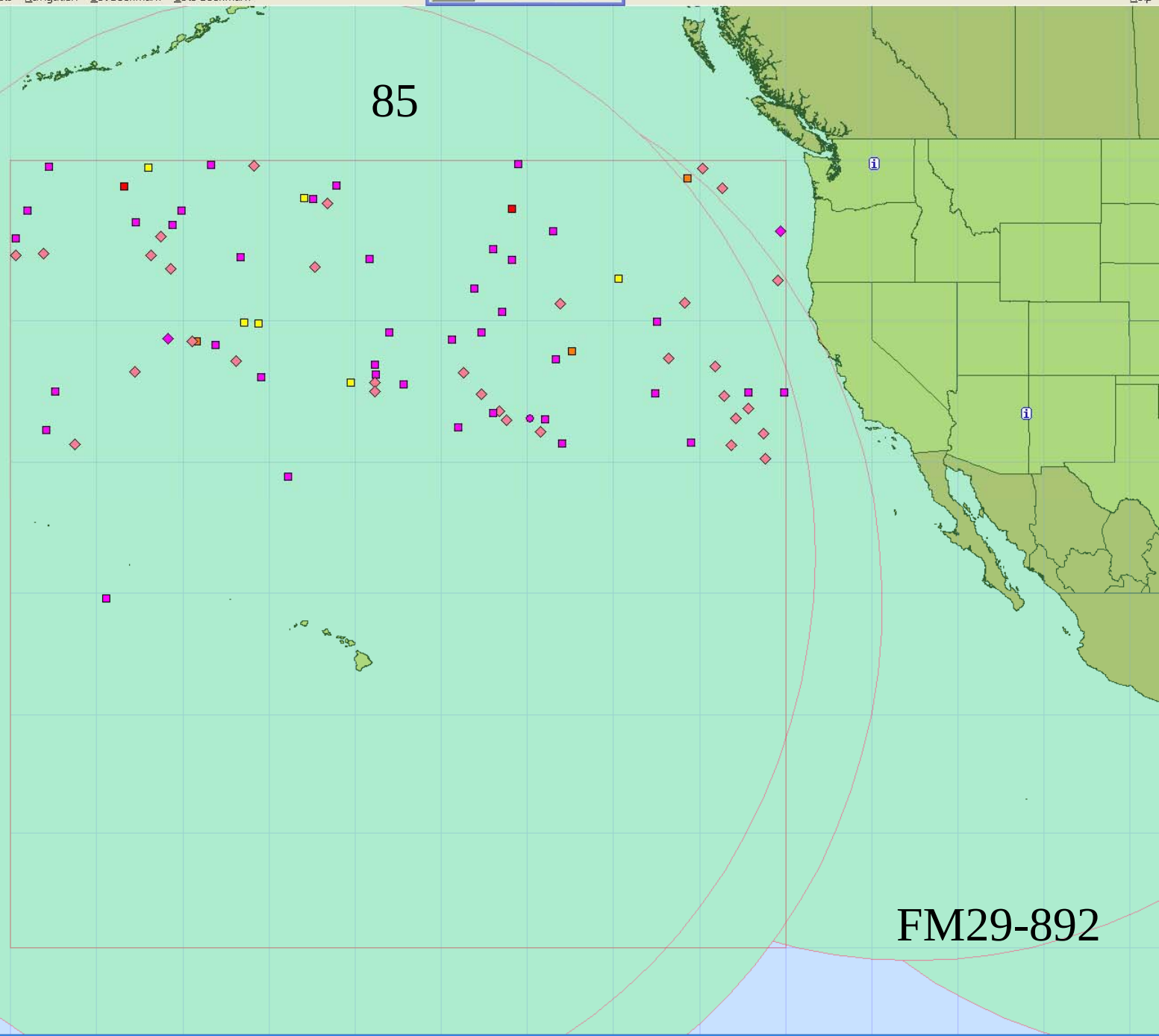


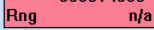
Aug 2008 NY_IL Mean/Max Range Percentages

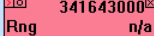


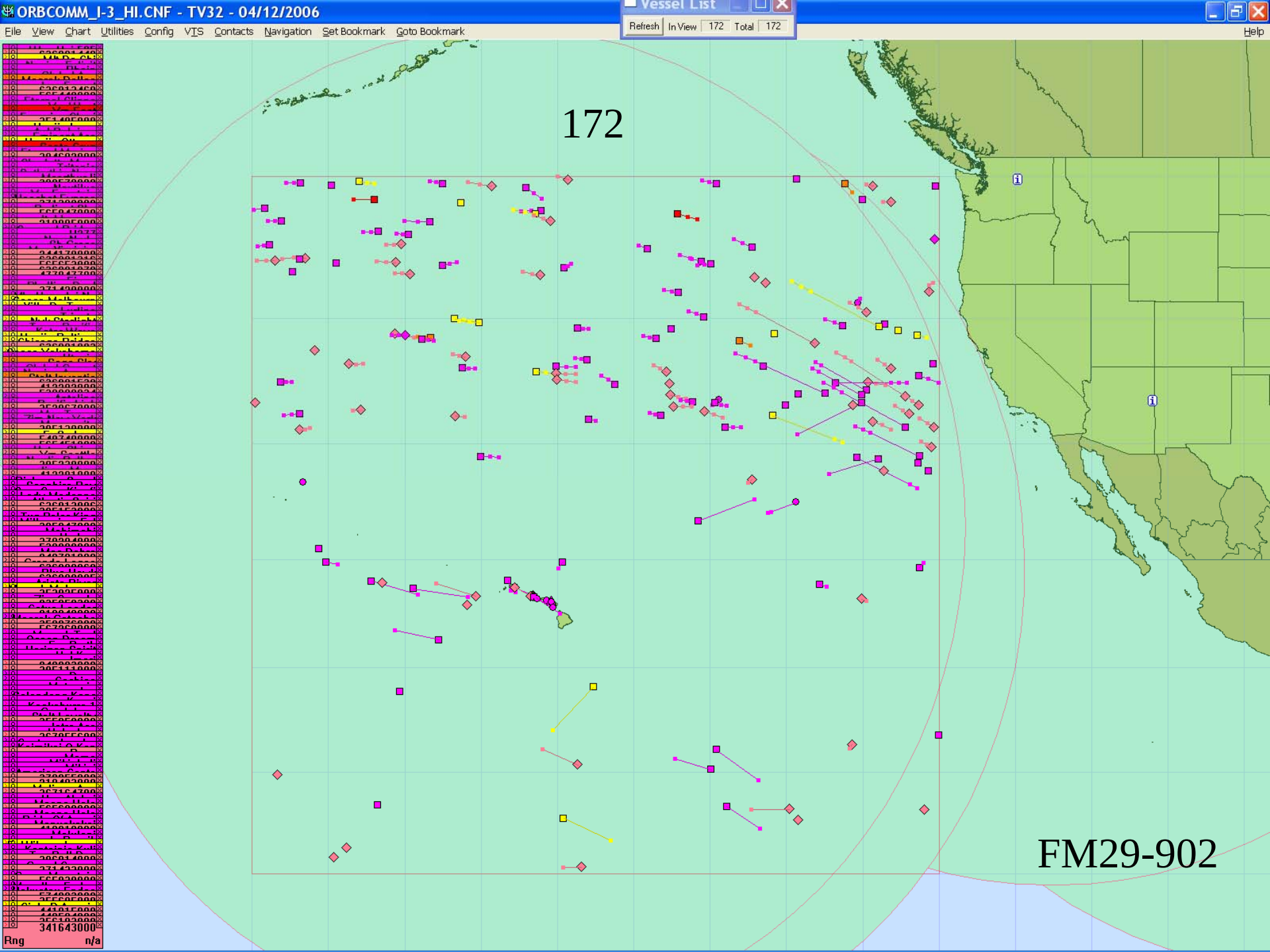


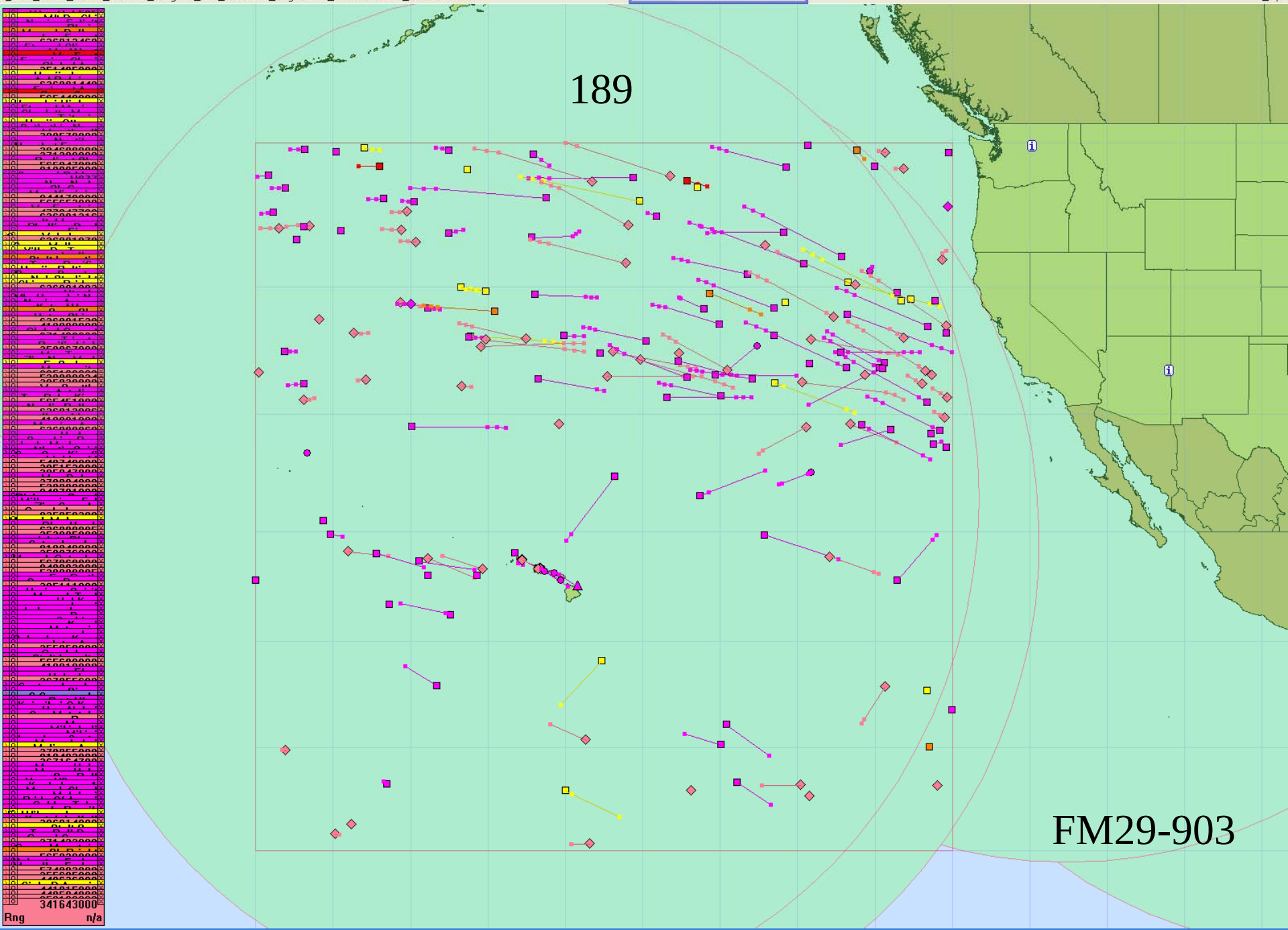
Global Ace
Rhein
565449000
Navios Felicit
M/T Da Chi
636013469
Maersk Dallas
Ym West
Ym East
351495000
Hanjin Ottawa
Eminent Ace
304602000
Santa Cruz
Eternal Marine
Charlotte Maer
Tritonia
Suthathin Nare
Ym Fountain
Mcarthur II
309579000
Nautilus
Ital Lunarc
371380000
565947000
218095000
New Nada
Sh Grace
H277
636091316
244178000
Nyk Starlight
477047700
Eicon
371429000
636091539
Mtv Hyundai No
Trieste
Ville De Tauru
Cosco Melbourne
Kater Wave
Trans Pacific
Utonia
Global Garnet
Sana Sky
636091083
Navios Aurora
Stolt Inventio
305153000
Cma Com Kinofit
538002934
Antalina
305139000
352967000
548748000
Msc Texas
Maroverite
565451000
Er Sydney
Rickmers Seoul
Ym Seattle
Nordic Bulker
Hatsu Shine
Jingu Maru
Maersk Gateshe
412201000
305230000
370204000
636013086
Millennium Fal
Tuo Polar King
636090285
Umlma
240721000
Aristo River
Blue Hawk
636090869
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Maersk Teal
Cetus Leader
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567269000
Ocean Dream
Selendang Kenc
Rng n/a

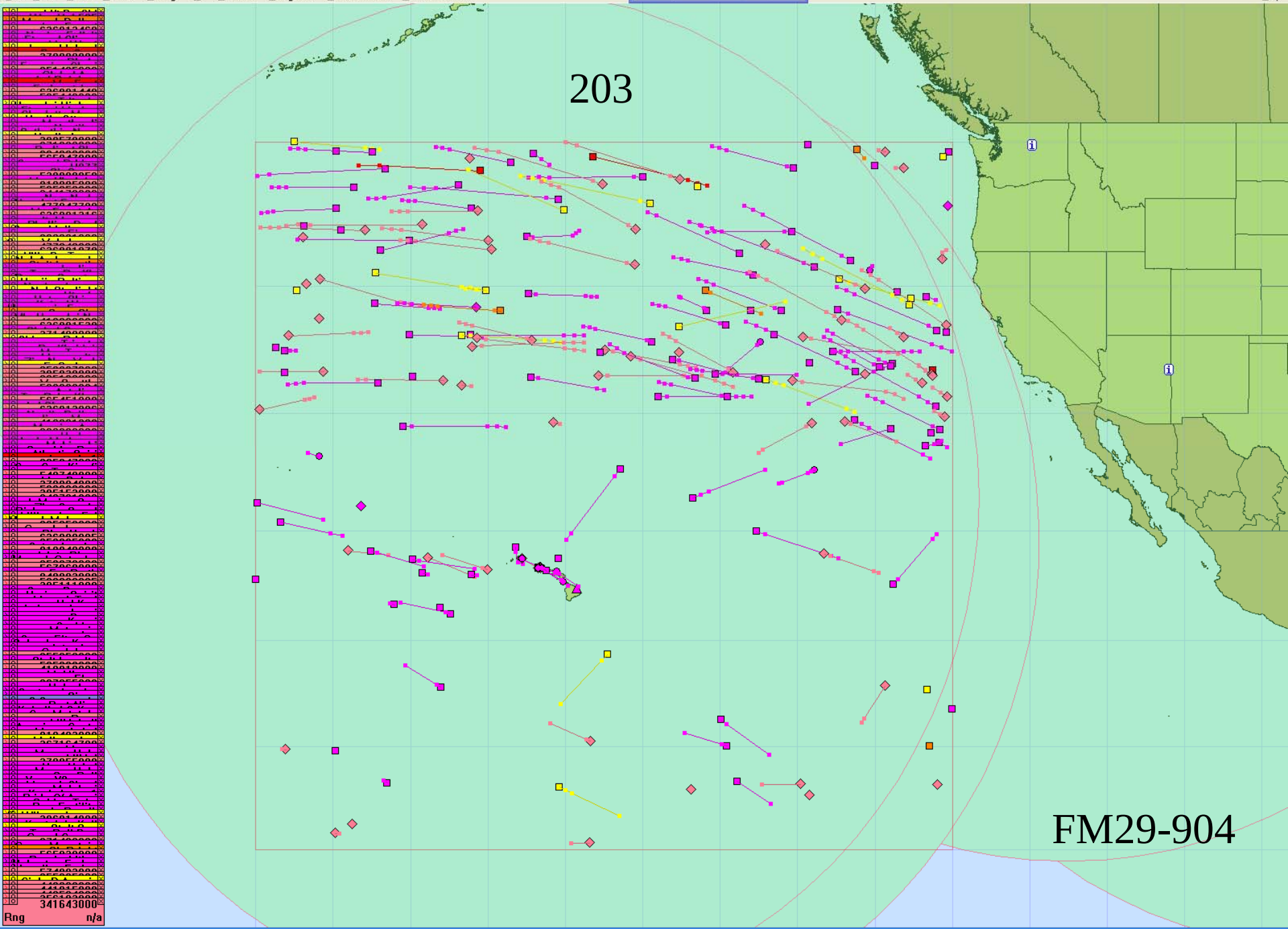


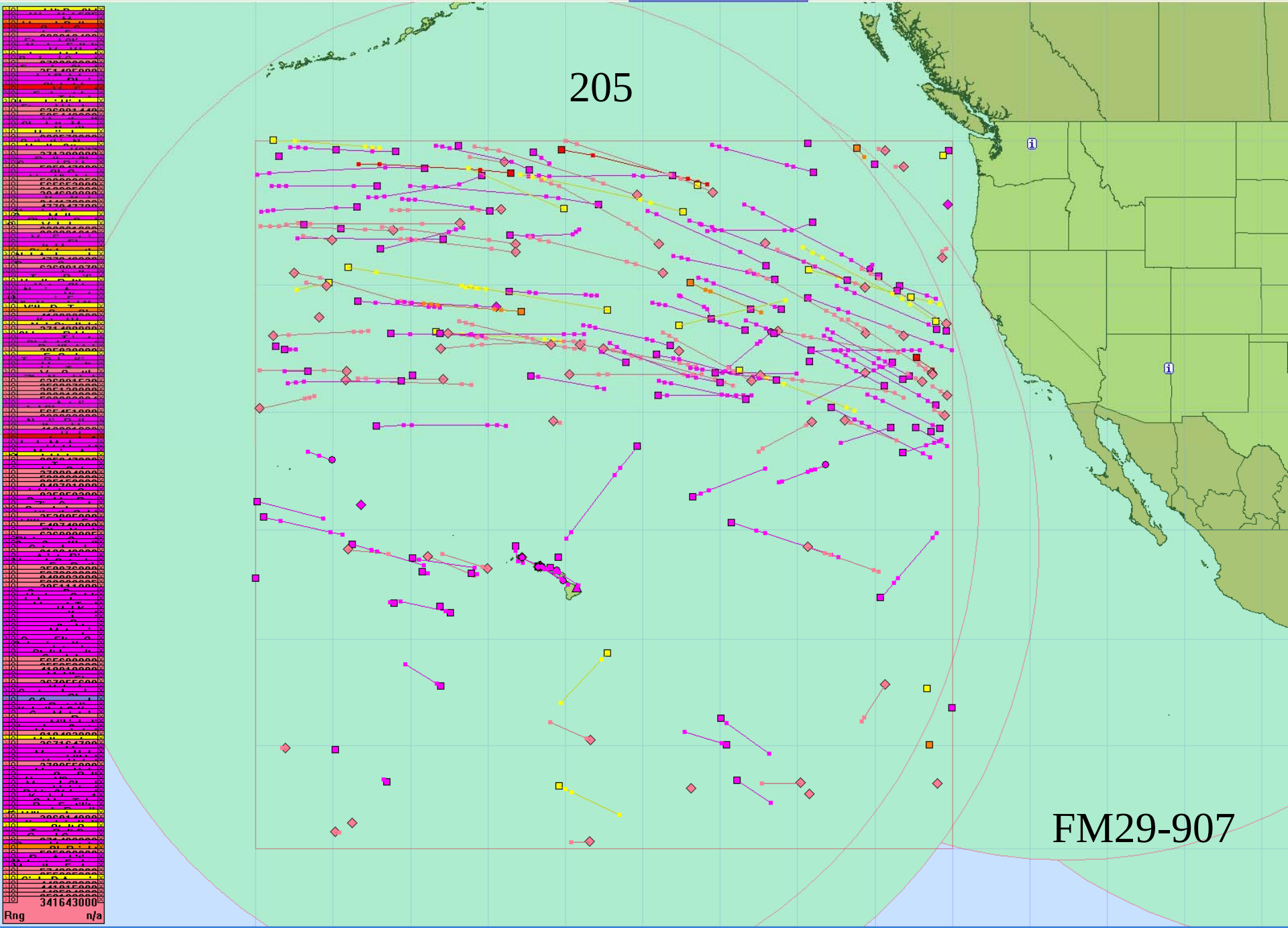


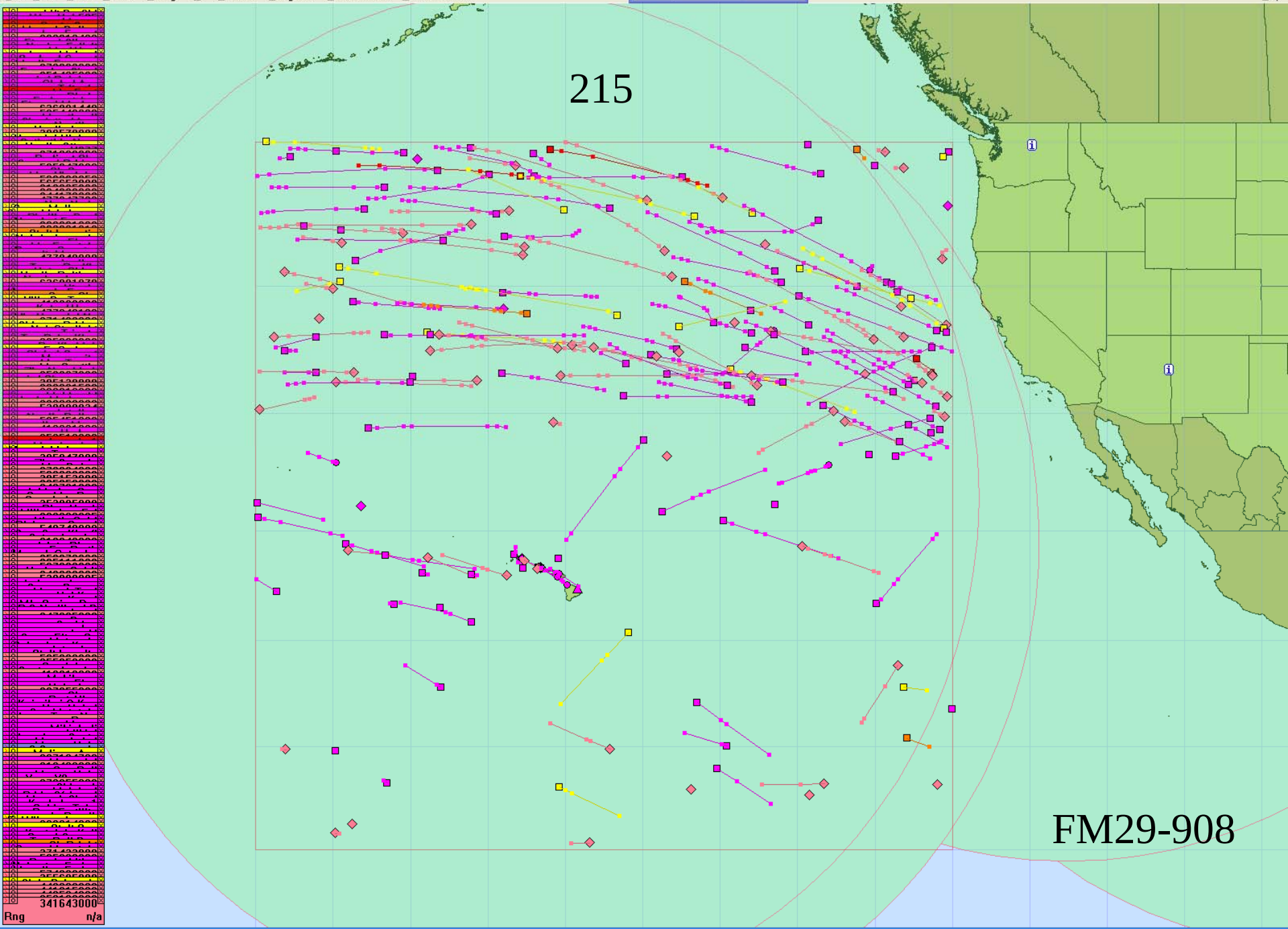


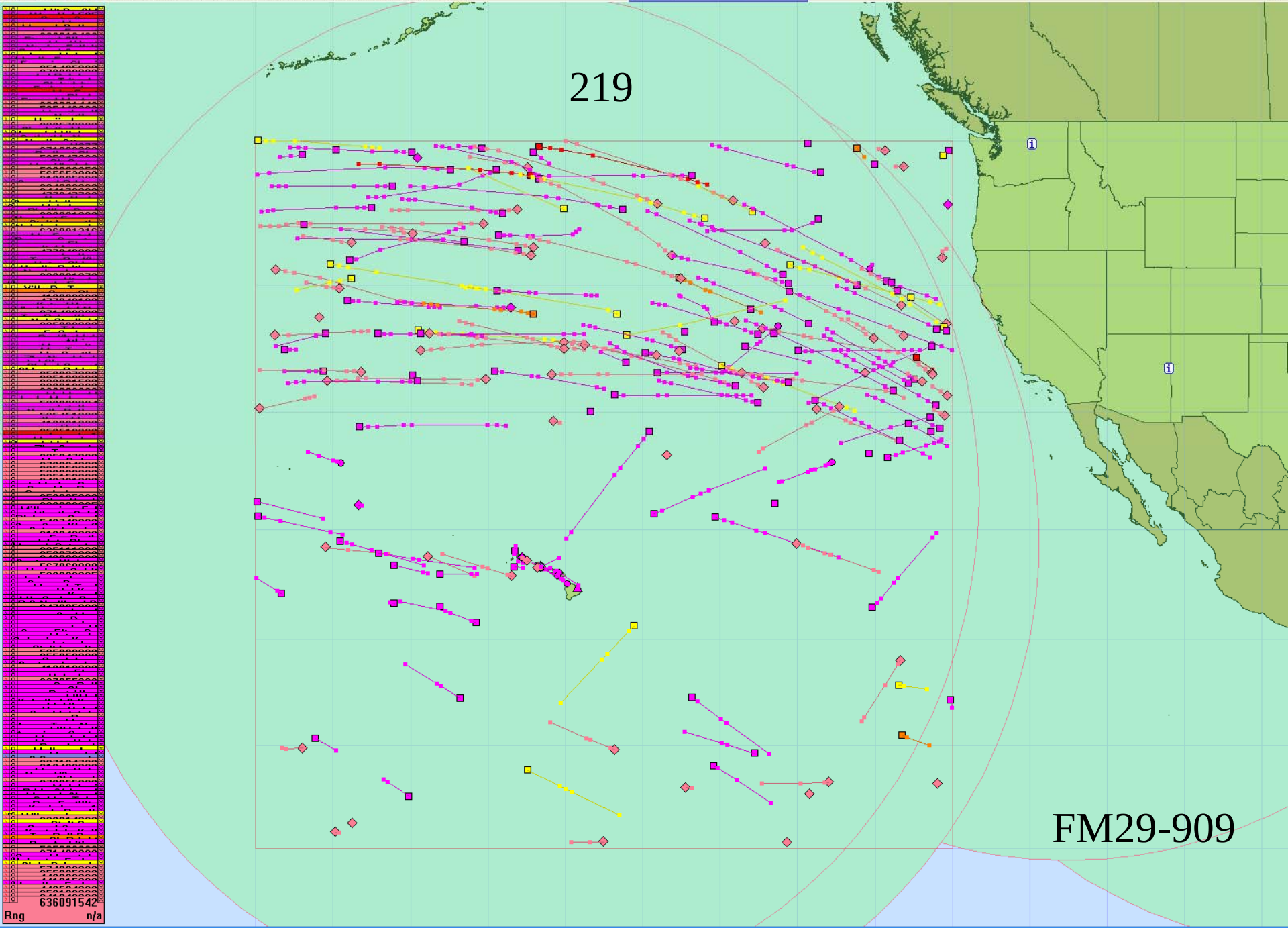










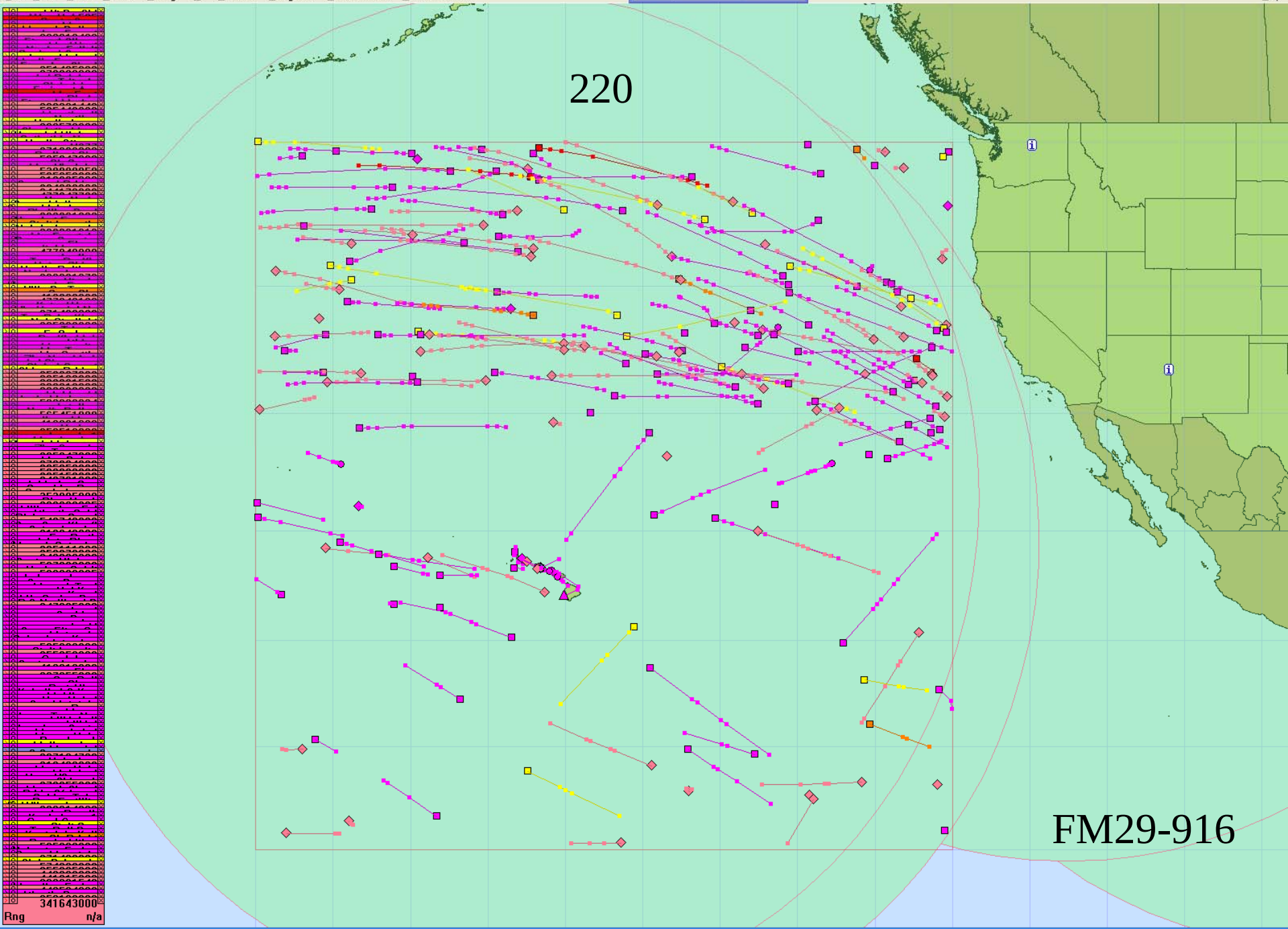


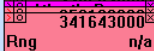
219

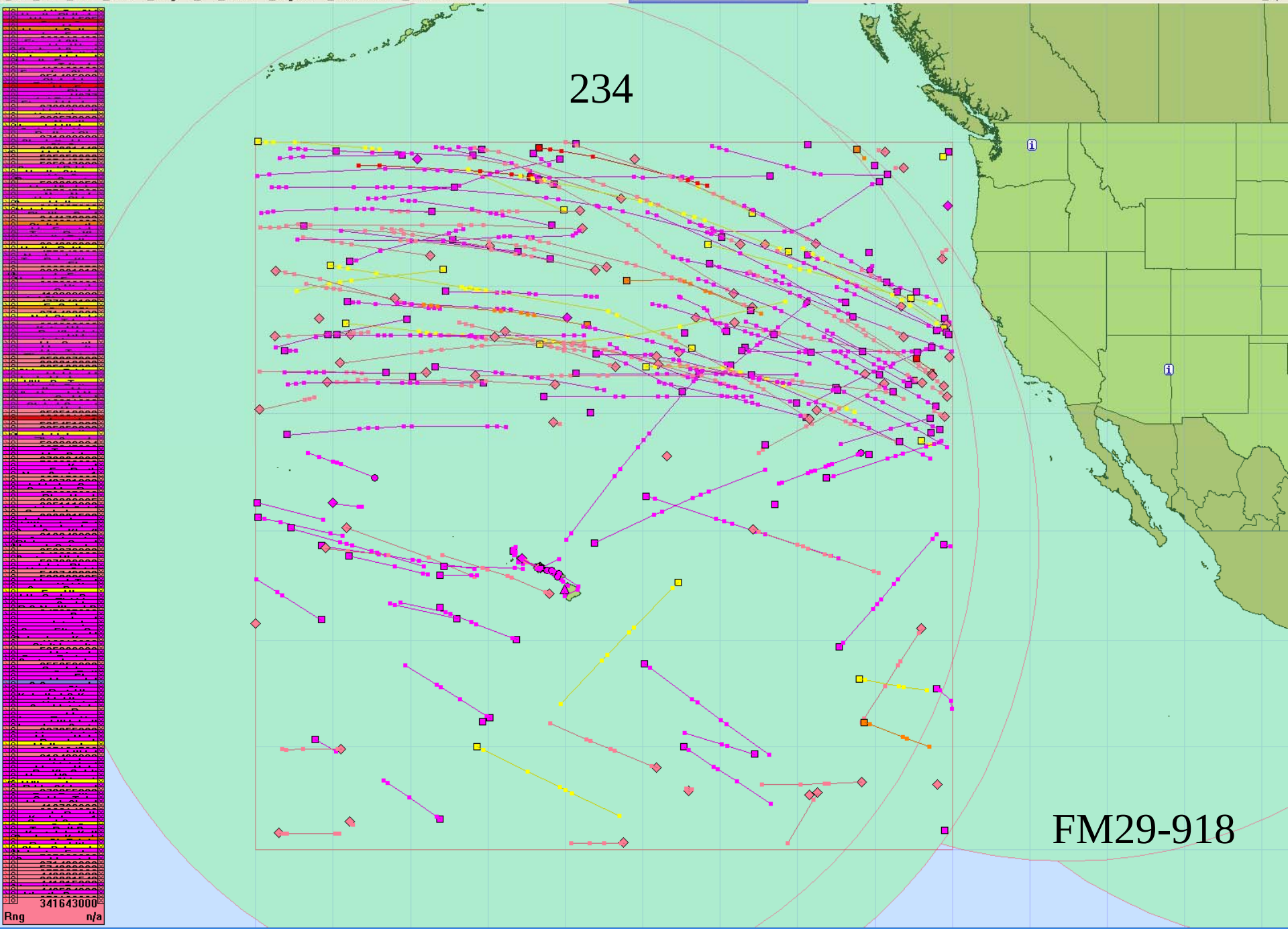
FM29-909

636091542

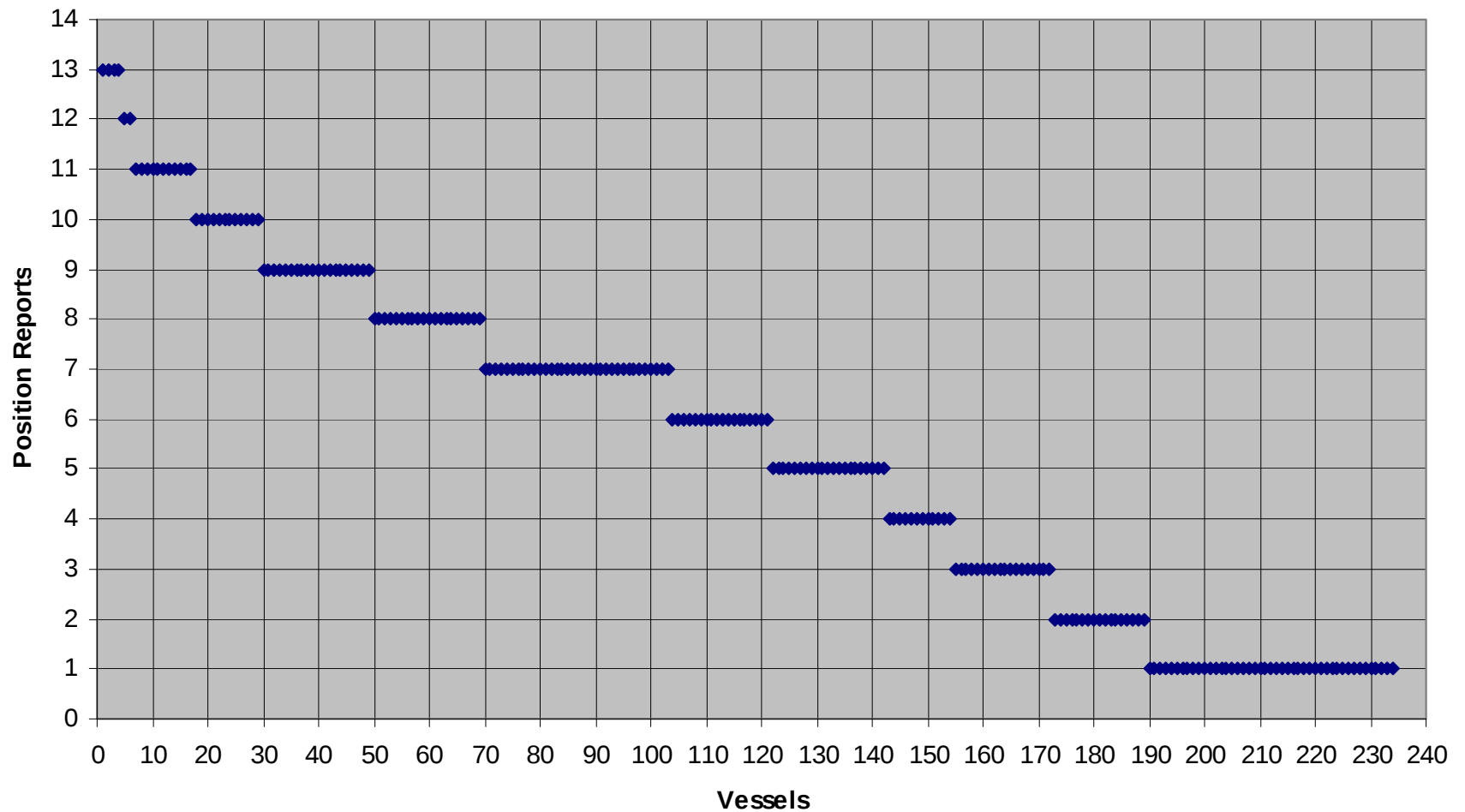
Rng n/a

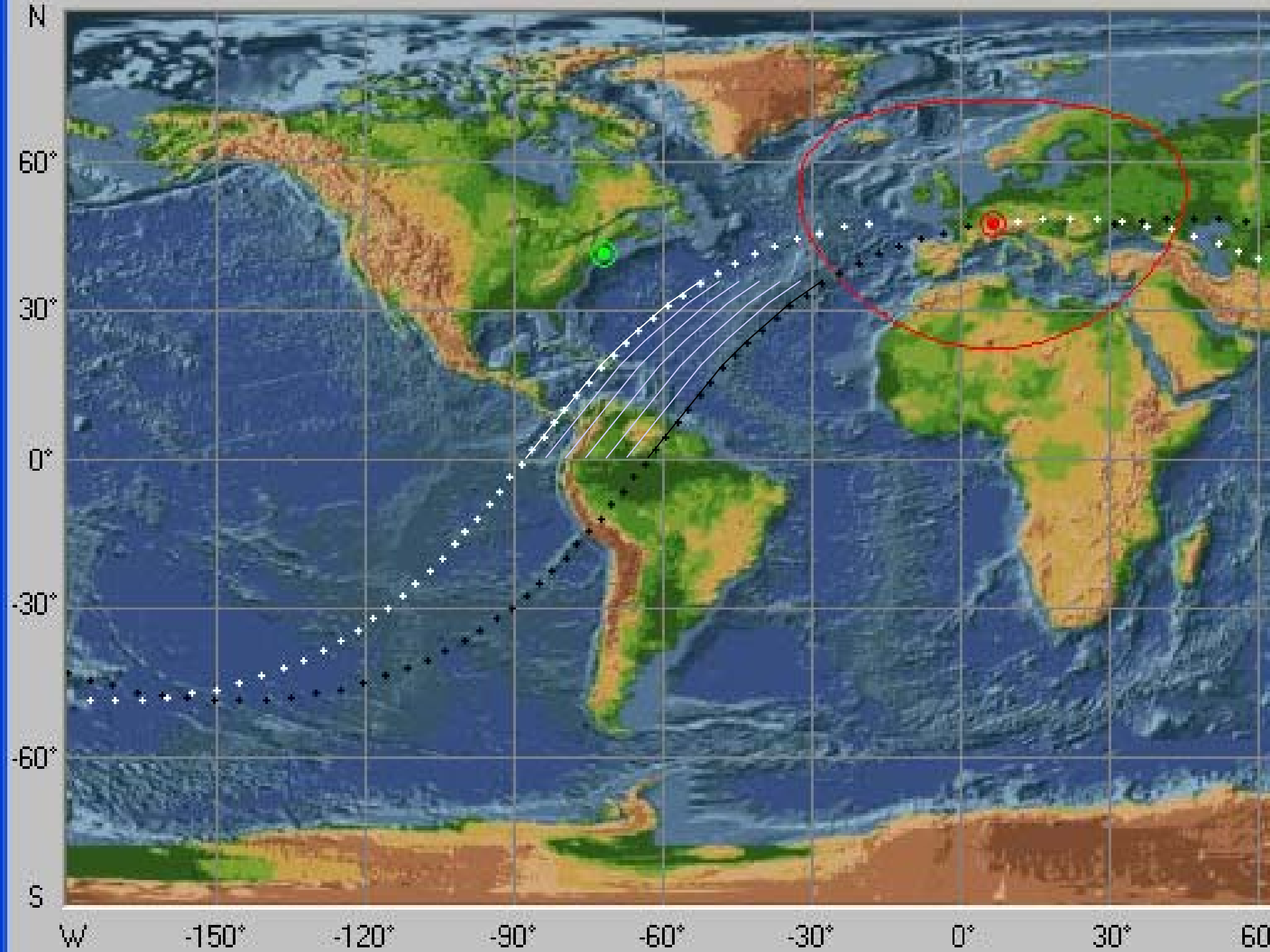






12 Pass results





Primary AIS Data Standards

ITU-R M.1371-3

NMEA 0183 [Ver. 4.0]
[IEC 61162-1]

NMEA 2000
IEC 61162-3



Primary AIS Data Standards

ITU-R M.1371-3

AIS VDL message content

NMEA 0183 [Ver. 4.0]
[IEC 61162-1]

Equipment interface/network data transport



Primary AIS Data Standards

ITU-R M.1371-3

Table defined “bits” in “messages”

NMEA 0183 [Ver. 4.0]

[IEC 61162-1]

Defined data fields in “sentences”



What is a “VDM” sentence?



Defined in NMEA 0183 Version 4.0

TAG Block 1	TAG Block 2	AIS Message content Defined in ITU-R M.1371
\s:rORBCOMM29v,c:1218844182*69\\s:ds6,c:1218844883*1C\!AIVDM,1,1,,110GQ00P00G<Es>L=>VMk?vj0000,0*01		
\s:rORBCOMM29v,c:1218844186*6D\\s:ds6,c:1218844883*1C\!AIVDM,1,1,,15MqApPP1=FpPr2M5CCEIOvp0000,0*79		
\s:rORBCOMM29v,c:1218844185*6E\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,15N5GjP01;FU0wv0cbQtEIpt0000,0*1E		
\s:rORBCOMM29v,c:1218844186*6D\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,181560h02MoSeWpBio@n@E0v0000,0*1C		
\s:rORBCOMM29v,c:1218844186*6D\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,14eGEAh001G<jIBL7chwUBPp0000,0*17		
\s:rORBCOMM29v,c:1218844190*6A\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,15Mq7@gP00GWf2HBeFc>20w40000,0*11		
\s:rORBCOMM29v,c:1218844191*6B\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,15NFGGrPP1Co>0cRKPSEVIgw60000,0*37		
\s:rORBCOMM29v,c:1218844192*68\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,15Mva85P17G?WBLEc<o=kww60000,0*56		
\s:rORBCOMM29v,c:1218844196*6C\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,15MA9T0022o9k@HE`V5cLa=<0000,0*3E		
\s:rORBCOMM29v,c:1218844198*62\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,110GQ000i@G3vt>JqJhFjEKB0000,0*69		
\s:rORBCOMM29v,c:1218844203*63\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,110GQ00P00G<Es<L=>WehgwH0000,0*52		
\s:rORBCOMM29v,c:1218844204*64\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,35DpiL1000oRl3HCCTf6GVkD0000,0*61		
\s:rORBCOMM29v,c:1218844204*64\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,14eG;lp001G:DerKv5W7R3GH0000,0*5E		
\s:rORBCOMM29v,c:1218844207*67\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,15N11N0P1SFG3FhPoQWnRgwN0000,0*26		
\s:rORBCOMM29v,c:1218844204*64\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,15Mwm;PP1BG?jhTEar>TkwwR0000,0*57		
\s:rORBCOMM29v,c:1218844212*63\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,34eG?uP0h?Ft5oRLu1H:o8Gh0000,0*78		
\s:rORBCOMM29v,c:1218844214*65\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,14QNNh?000G8b;TIQsVTSPgh0000,0*63		
\s:rORBCOMM29v,c:1218844220*62\\s:ds6,c:1218844885*1A\!AIVDM,1,1,,15NE@7PP@pGabCHB25euEJ`60000,0*6C		
\s:rORBCOMM29v,c:1218844220*62\\s:ds6,c:1218844885*1A\!AIVDM,1,1,,15N2rwPP00GRV<8CBrw:P0v40000,0*3E		
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\s:rORBCOMM29v,c:1218844222*60\\s:ds6,c:1218844885*1A\!AIVDM,1,1,,15N8BKPP00G99hlJKRtP0?v60000,0*67		
\s:rORBCOMM29v,c:1218844223*61\\s:ds6,c:1218844885*1A\!AIVDM,1,1,,34eGJCh6A<o;nVpL7q4i=Pn60000,0*16		

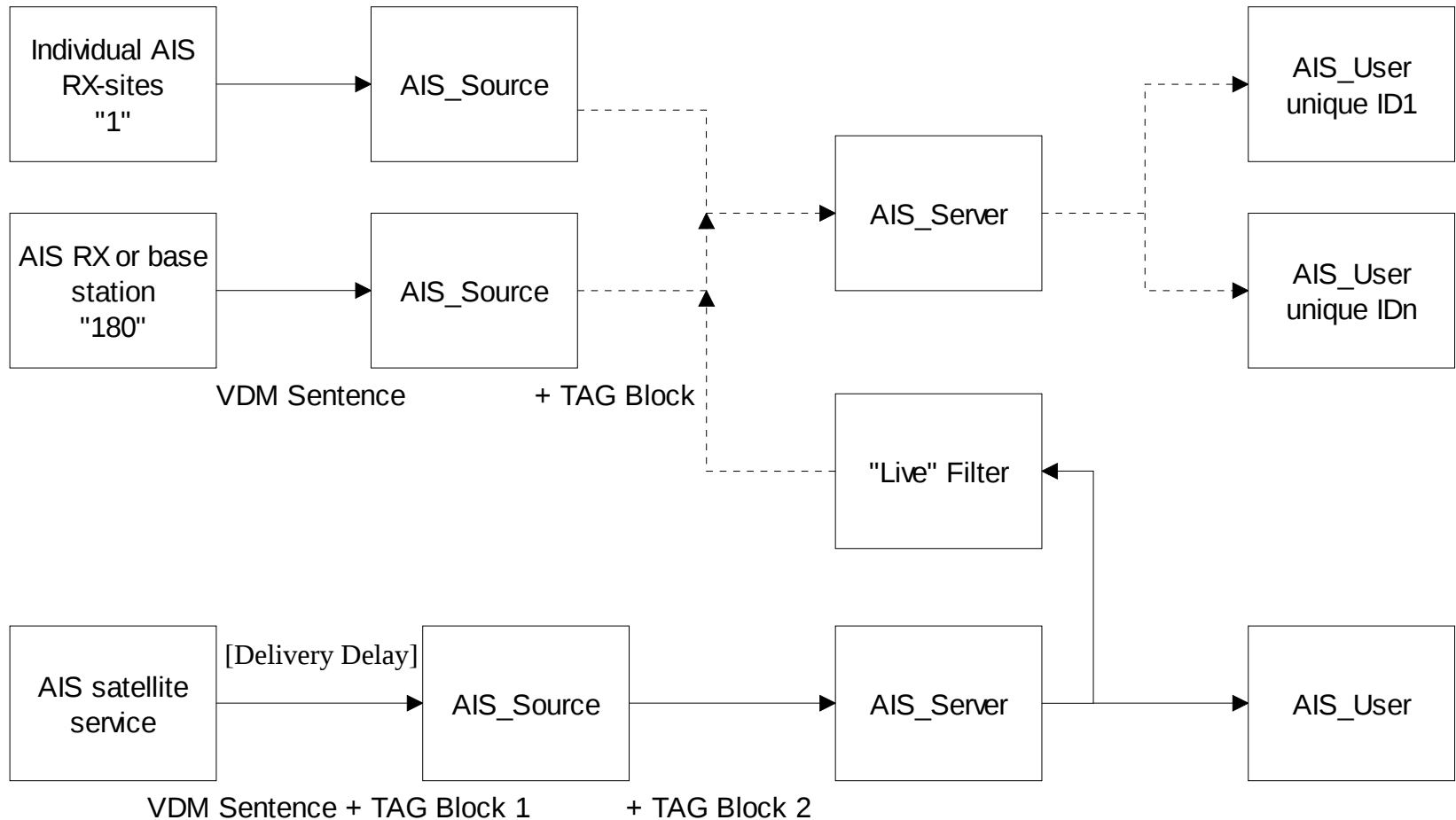


TAG (Transport, Annotate, and Group) Block

Its all about the sentences - not the sensor!



Moving the data



TAG Block 1	TAG Block 2	AIS Message content
\s:rORBCOMM29v,c:1218844182*69\\s:ds6,c:1218844883*1C\!AIVDM,1,1,,110GQ00P00G<Es>L=>VMk?vj0000,0*01		
\s:rORBCOMM29v,c:1218844186*6D\\s:ds6,c:1218844883*1C\!AIVDM,1,1,,15MqApPP1=FpPr2M5CCEIOvp0000,0*79		
\s:rORBCOMM29v,c:1218844185*6E\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,15N5GjP01;FU0ww0cbQtEIpt0000,0*1E		
\s:rORBCOMM29v,c:1218844186*6D\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,181560h02MoSeWpBio@n@E0v0000,0*1C		
\s:rORBCOMM29v,c:1218844186*6D\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,14eGEAh001G<jIBL7chwUBPp0000,0*17		
\s:rORBCOMM29v,c:1218844190*6A\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,15Mq7@gP00GWf2HBeFc>20w40000,0*11		
\s:rORBCOMM29v,c:1218844191*6B\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,15NFGGrPP1Co>0cRKPSEVIgw60000,0*37		
\s:rORBCOMM29v,c:1218844192*68\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,15Mva85P17G?WBLEc<o=kww60000,0*56		
\s:rORBCOMM29v,c:1218844196*6C\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,15MA9T0022o9k@HE`V5cLa=<0000,0*3E		
\s:rORBCOMM29v,c:1218844198*62\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,110GQ000i@G3vt>JqJhFjEKB0000,0*69		
\s:rORBCOMM29v,c:1218844203*63\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,110GQ00P00G<Es<L=>WehgwH0000,0*52		
\s:rORBCOMM29v,c:1218844204*64\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,35DpiL1000oRl3HCCTf6GVkD0000,0*61		
\s:rORBCOMM29v,c:1218844204*64\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,14eG;lp001G:DerKv5W7R3GH0000,0*5E		
\s:rORBCOMM29v,c:1218844207*67\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,15N11N0P1SFG3FhPoQWnRgwN0000,0*26		
\s:rORBCOMM29v,c:1218844204*64\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,15Mwm;PP1BG?jhTEar>TkwwR0000,0*57		
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\s:rORBCOMM29v,c:1218844214*65\\s:ds6,c:1218844884*1B\!AIVDM,1,1,,14QNNh?000G8b;TIQsVTSPgh0000,0*63		
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\s:rORBCOMM29v,c:1218844222*60\\s:ds6,c:1218844885*1A\!AIVDM,1,1,,15N8BKPP00G99hlJKRtP0?v60000,0*67		
\s:rORBCOMM29v,c:1218844223*61\\s:ds6,c:1218844885*1A\!AIVDM,1,1,,34eGJCh6A<o;nVpL7q4i=Pn60000,0*16		



AIS Valid Position Reports are 18 bytes when transmitted from the ORBCOMM satellites to the ground infrastructure. They contain the information as noted in the ITU-R M.1371 documentation as follows:

- Message ID
- Repeat Indicator
- User ID (MMSI)
- Navigational Status
- Rate of Turn
- Speed Over Ground
- Position Accuracy
- Longitude
- Latitude
- Course Over Ground
- True Heading
- Time Stamp

The final four fields as noted in the ITU-R M.1371 documentation are not used; they are:

- Special maneuver indicator (2 bits)
- Spare (3 bits)
- RAIM Flag (1 bit)
- Communication State (19 bits)



So, where do we go from here?

