CNS/AIRS VHF Frequency Assignment Planning Tool

Background

- Since early 90's, providing frequency assignment planning software requests was raised from Regional Offices to ICAO HQs

- MID 90's – programs were developed for use in the EUR Region. To date, these programs have now evolved into MANIF and SAFIRE

- Late 90's – A program was developed by China for use in the APAC Office

Background(continued)

- Early 2000 – ICAO developed a program for frequency planning for HF frequencies. This program is available for global use.

- 2004 – Eurocontrol offered ICAO to use SAFIRE for frequency coordination. These offers never materialized.

- 2008- ICAO started in house the development of a program for frequency assignment planning for COM and NAV systems.

Developing Strategy

- Integration- if the information contained in the frequency plans with the information in the ANP to provide for airspace planning tools.

- Neither of the programs available in the EUR and the APAC Office would provide for global frequency planning without significant modifications.

Strategy (Continued)

- Frequency planning needs to be based on more frequency efficient techniques. Currently, in most regions, planning is based on circular coverage to avoid un-necessary congestion. This will avoid (or delay) retrofit of aircraft with equipment with reduced channel spacing.

- The global database developed with the program will improve interregional coordination.

Design method /Software Framework

- The program is envisaged to be available from the ICAO web accessible to all ICAO contracting States. This mechanism will provide means for States to pre-calculate and pre-coordinate their frequency assignments.
- Together with the information on the ICAO web on airspace usage (such as air routes, operational areas a tool for airspace planning
- The program will be based on a single global database.

(Continued)

- The principles for frequency planning as has been established in ICAO since the mid 1950's will not change. However, in order to accommodate for more efficient frequency planning, some changes may be necessary to the current planning criteria (table of geographic distances between facilities).

(Continued)

- The program will allow the user to plot on a map the operational coverage and the interference contours for frequency assignments.

- The program will also be available on CD-ROM for any off-line use.

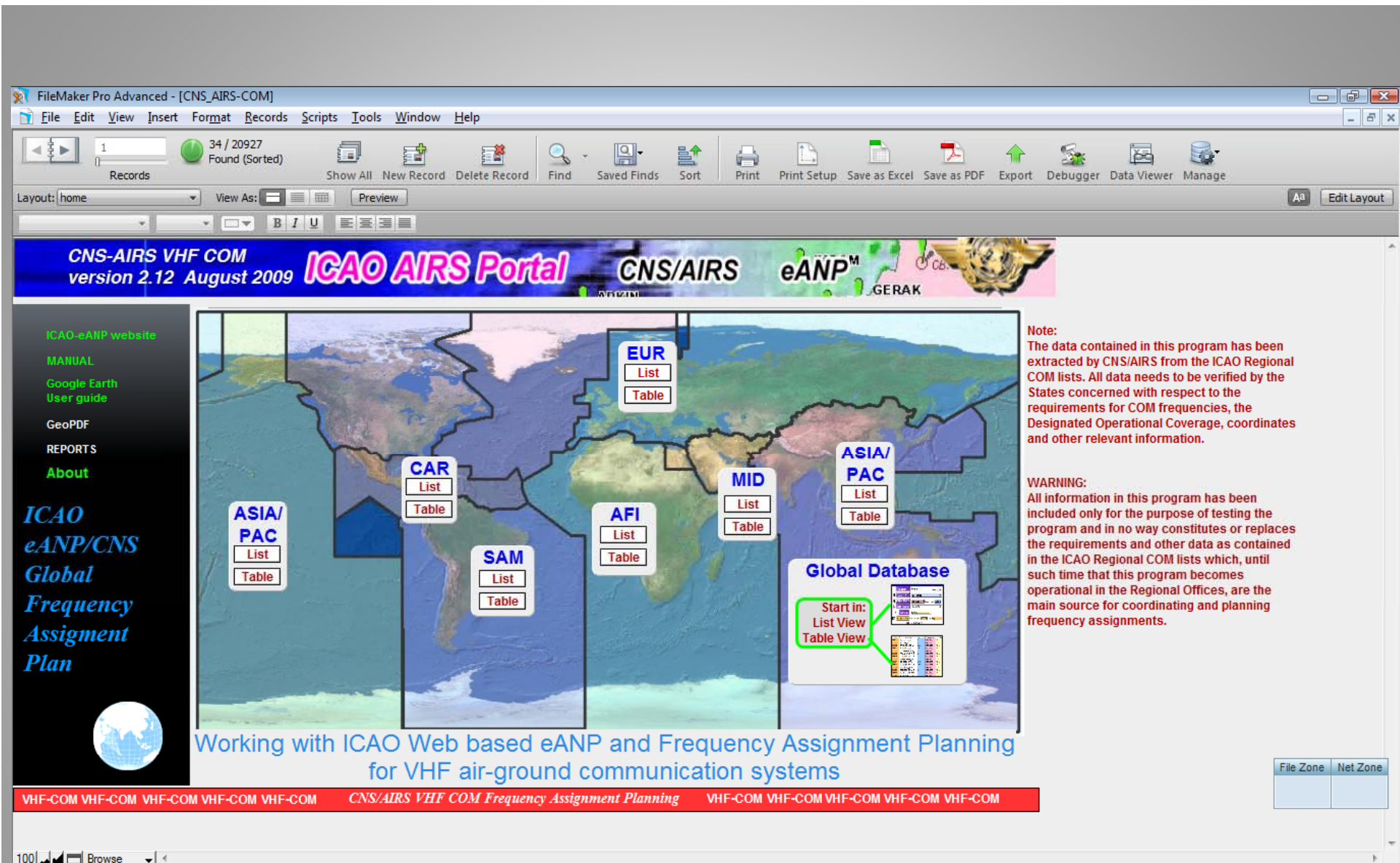- The global database can only be updated by the Regional Offices.

(Continued)

- Regional databases (COM lists) can be generated from this global list. Other lists (e.g. national frequency lists) can also be generated.

- The program will allow the user to plot the operational coverage and the interference contours for frequency assignments on a map.

(Continued)

- Under consideration is the development of specific software for calculating separation distances, in particular for new (or amended) frequency assignments. One country has offered to consider developing such software. This would greatly enhance efficient frequency planning.

(Continued)

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- It runs on any PC with MS Windows [and MAC] and uses FileMaker Pro Advanced as the main database.

- Offers the user to query the data base by Region, Country, frequency, location and service etc.

- Results of the query can be exported to either Microsoft Excel or to a PDF file.

FileMaker Pro Advanced - [CNS_AIRS-COM]

File   Edit   View   Insert   Format   Records   Scripts   Tools   Window   Help

812   1581 / 20927   Found (Sorted)   Show All   New Record   Delete Record   Find   Saved Find   Sort   Print   Print Se

Records

Layout: AFIAPACLISTfinal   View As: Preview

B I U

Home   New/Mod Frequency   Search frequency   Mapping   Mapping (pre-calc)   VIEW AS COM LIST   Color coding frequencies

Search Freq. Band   Mapping   Mapping

Search Freq. Single   Not assignable frequency (Emergency, SAR)

Calculation results   Aerodrome Surface communications

records found: 1581   Press Esc to cancel running scripts   Aeronautical Operational Control

Base layers 2008 Fir world ICAO Fir sector world COM world Aero world   Route AFI   Route MID   Route ASIA PAC Route CARSAM Route EUR   Air/ground communications

COM LIST 3

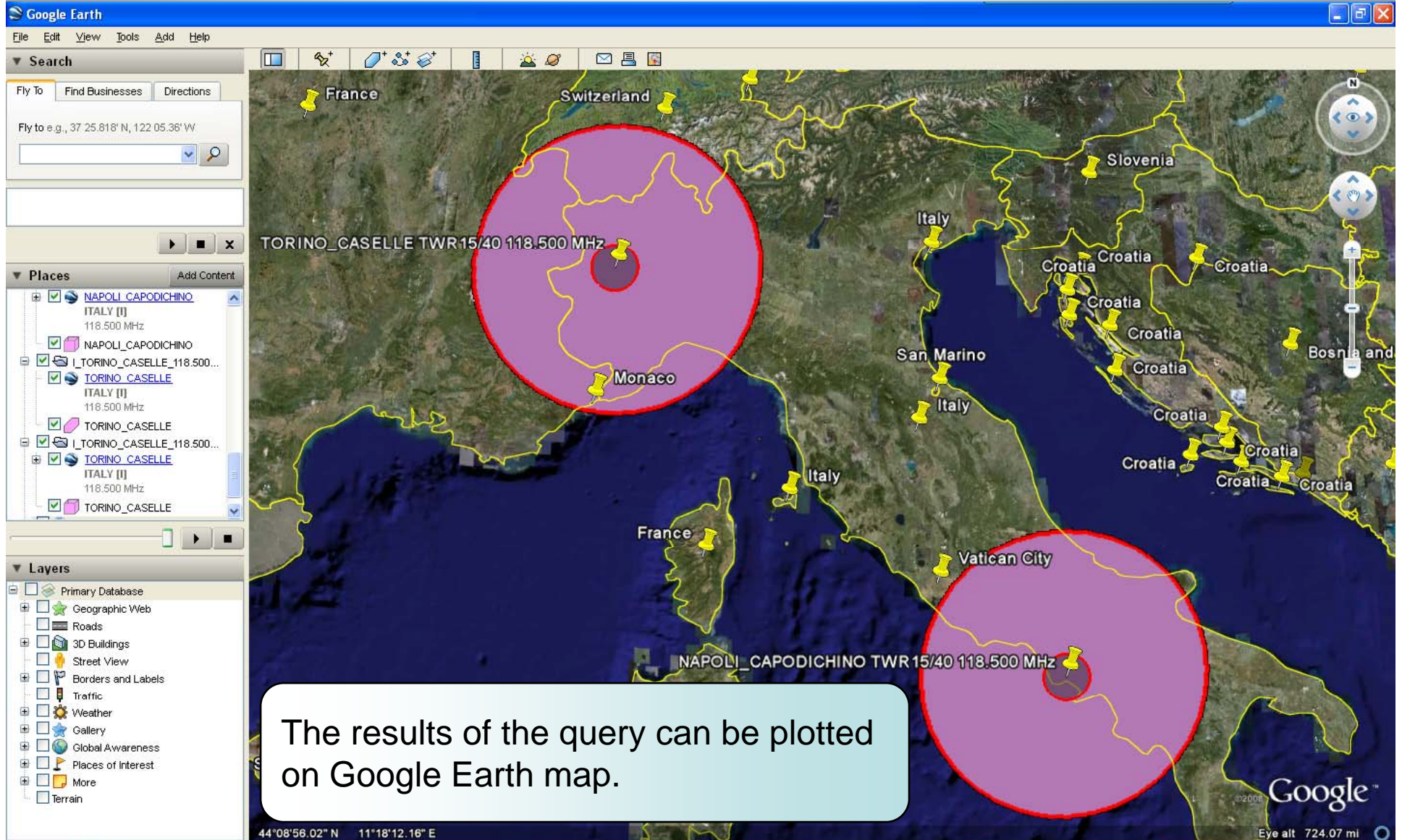REGION   AFI   2 Reg: 28809   LATITUDE 06D35"00"N   LONGITUDE   003D19'00" E   FIR
                                                                                                      CNS
                                                             Dec.lat   6.58333333
COUNTRY Nigeria   CONDITION OP   CATEGORY NAT   Dec.long 3.31666667   DOC AOC
FREQUENCY 131.900   Country code: NIG   REMARKS KLM   Entry/Mod   Range   1 NM
                                                                                          Height   1 ft
NAME location LAGOS_MURTALA_MUHAM   SERVICE AOC   STATUS   BY   Radio Hor.   1 NM

REGION   AFI   2 Reg: 28810   LATITUDE 00D43"00"S   LONGITUDE   010D14'00" E   FIR
                                                                                                      CNS
                                                             Dec.lat   -.716666667
COUNTRY Gabon   CONDITION OP   CATEGORY NAT   Dec.long 10.2333333   DOC AFIS 25/40
FREQUENCY 118.600   Country code: GAB   REMARKS   Entry/Mod   Range   25 NM
                                                                                          Height   25000 ft
NAME location LAMBARENE   SERVICE AFIS   STATUS   BY   Radio Hor.   194 NM

REGION   AFI   2 Reg: 28811   LATITUDE 00D43"00"S   LONGITUDE   010D14'00" E   FIR
                                                                                                      CNS
                                                             Dec.lat   -.716666667
COUNTRY Gabon   CONDITION P   CATEGORY ICAO   Dec.long 10.2333333   DOC
FREQUENCY 125.200   Country code: GAB   REMARKS   Entry/Mod   Range   NM
                                                                                          Height   ft
NAME location LAMBARENE   SERVICE   STATUS   BY   Radio Hor.   NM

Active record   File Zone   Net Zone

VHF-COM VHF-COM VHF-COM VHF-COM VHF-COM   *CNS/AIRS VHF COM Frequency Assignment Planning*   VHF-COM VHF-COM VHF-COM VHF-COM VHF-COM

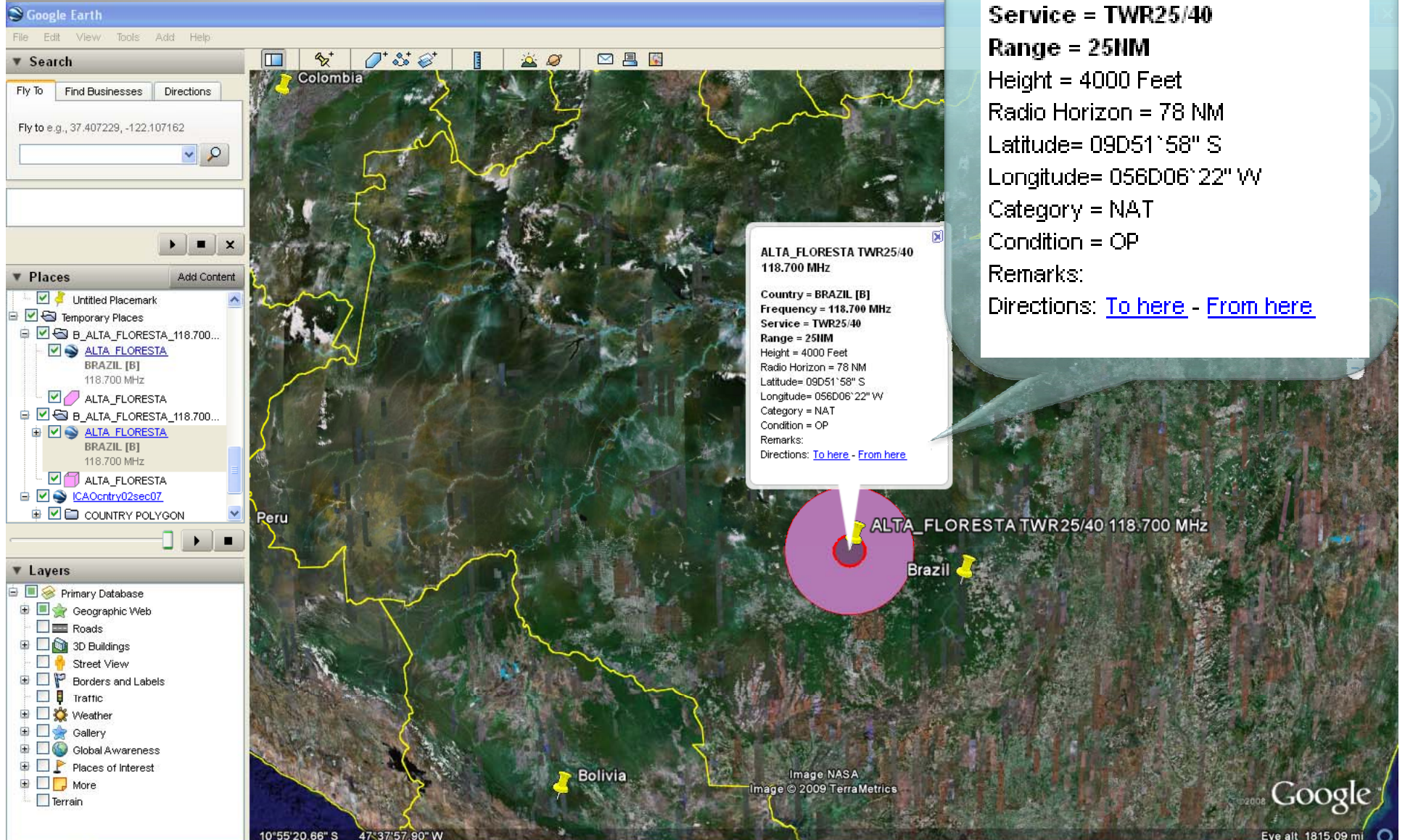100   Browse

Co-channel Frequency Planning

The results of the query can be plotted on Google Earth map.

KML files information

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- Program for SSR Mode S II code assignment and planning is available

- Program for HF planning an coordination is available

- Programs for ILS/VOR/DME and for NDB are in preparation

- Expected completion of all programs is in 2010

Thanks for your attention!