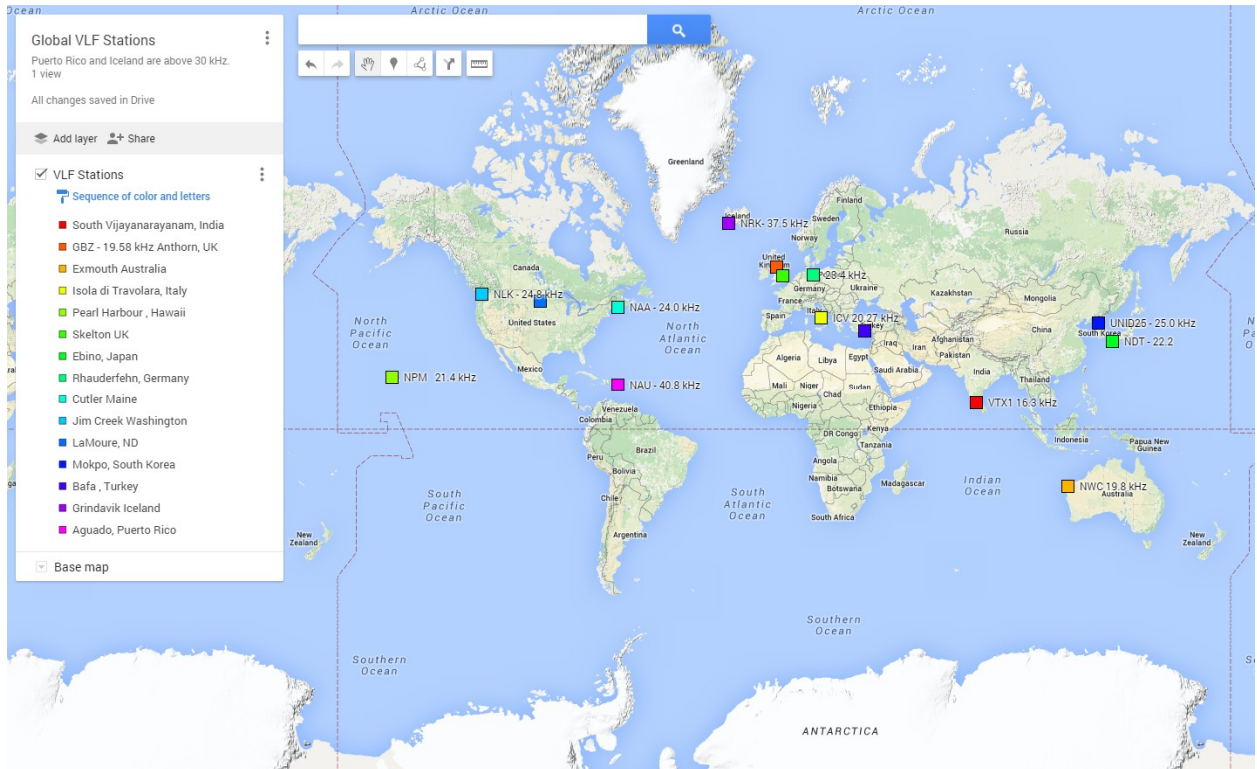




**Celebrating 35 Years**  
 Leading the World of **Magnetics**

**GEM Systems, Inc.**  
 135 Spy Court  
 Markham, ON CANADA L3R 5H6  
 Ph. 905 752-2202 Fax 905 752-2205  
[info@gemsystems.ca](mailto:info@gemsystems.ca) [www.gemsystems.ca](http://www.gemsystems.ca)

## Reported VLF Stations and Coverage





**Celebrating 35 Years**  
Leading the World of **Magnetics**

**GEM Systems, Inc.**  
135 Spy Court  
Markham, ON CANADA L3R 5H6  
Ph. 905 752-2202 Fax 905 752-2205  
[info@gemsystems.ca](mailto:info@gemsystems.ca) [www.gemsystems.ca](http://www.gemsystems.ca)

2014 VLF Stations

| Call sign | Notes          | Frequency | Power   | Location  | Latitude                          | Longitude                           |
|-----------|----------------|-----------|---------|---|-----------------------------------|-------------------------------------|
| VTX1      |                | 16300     |         | South Vijayanarayanam, India<br>Locator: MJ88vj                           | N 08° 23' 13.25"<br>(+08.387015°) | E 077° 45' 9.94"<br>(+077.752762°)  |
| JXN       | <sup>(1)</sup> | 16400     | 45kW    | Novik, Norway<br>Locator: JP66wx  | N 66° 58' 27.67"<br>(+66.974353°) | E 013° 52' 25.02"<br>(+013.873617°) |
| VTX2      |                | 17000     |         | South Vijayanarayanam, India<br>Locator: MJ88vj                           | N 08° 23' 13.25"<br>(+08.387015°) | E 077° 45' 9.94"<br>(+077.752762°)  |
| VTX3      |                | 18200     |         | South Vijayanarayanam, India<br>Locator: MJ88vj                           | N 08° 23' 13.25"<br>(+08.387015°) | E 077° 45' 9.94"<br>(+077.752762°)  |
| VTX4      |                | 19200     |         | South Vijayanarayanam, India<br>Locator: MJ88vj                           | N 08° 23' 13.25"<br>(+08.387015°) | E 077° 45' 9.94"<br>(+077.752762°)  |
| GBZ       |                | 19580     | 500kW   | Anthorn, UK<br>Locator: IO84iv  | N 54° 54' 41.91"<br>(+54.911643°) | W 003° 16' 42.44"<br>(-003.278456°) |
| NWC       |                | 19800     | 1000kW  | Harold E. Holt, North West Cape,<br>Exmouth, Australia<br>Locator: OG78be | S 21° 48' 58.78"<br>(-21.816328°) | E 114° 09' 56.11"<br>(+114.165586°) |
| ICV       |                | 20270     | 20/43kW | Isola di Tavolara, Italy<br>Locator: JN40uw                               | N 40° 55' 23.26"<br>(+40.923127°) | E 009° 43' 51.64"<br>(+009.731011°) |
| NPM       |                | 21400     | 566kW   | Pearl Harbour, Lualaba, HI<br>Locator: BL01wk                             | N 21° 25' 12.60"<br>(+21.420166°) | W 158° 09' 4.10"<br>(-158.151140°)  |
| GQD       |                | 22100     | 500kW   | Skelton, UK<br>Locator: IO84nr  | N 54° 43' 54.48"<br>(+54.731799°) | W 002° 52' 58.92"<br>(-002.883033°) |
| NDT       |                | 22200     | 200kW   | Ebino, Japan<br>Locator: PM52jb   | N 32° 04' 55.50"<br>(+32.082084°) | E 130° 49' 40.66"<br>(+130.827960°) |
| DHO38     | <sup>(6)</sup> | 23400     | 800kW   | Rhauderfehn, Germany<br>Locator: JO33tb                                   | N 53° 04' 44.04"<br>(+53.078900°) | E 007° 36' 54.00"<br>(+007.615000°) |
| NAA       |                | 24000     | 1000kW  | Cutler, ME<br>Locator: FN64ip   | N 44° 38' 41.77"<br>(+44.644936°) | W 067° 16' 53.90"<br>(-067.281639°) |
| NLK       |                | 24800     | 250kW   | Oso Wash, Jim Creek, WA<br>Locator: CN98ae                                | N 48° 12' 12.55"<br>(+48.203487°) | W 121° 55' 0.58"<br>(-121.916827°)  |
| unid25    |                | 25000     |         | Mokpo, South Korea<br>Locator: PM34fq                                     | N 34° 40' 44.65"<br>(+34.679068°) | E 126° 26' 43.38"<br>(+126.445383°) |
| NML       | <sup>(7)</sup> | 25200     | 500kW   | La Moure, ND<br>Locator: EN06ti   | N 46° 21' 57.56"<br>(+46.365990°) | W 098° 20' 8.30"<br>(-098.335638°)  |
| TBB       |                | 26700     |         | Bafa, Turkey<br>Locator: KM37pj   | N 37° 24' 45.81"<br>(+37.412725°) | E 027° 19' 24.03"<br>(+027.323342°) |
| NRK/TFK   |                | 37500     | 100kW   | Grindavik, Iceland<br>Locator: HP83su                                     | N 63° 51' 1.31"<br>(+63.850365°)  | W 022° 28' 0.38"<br>(-022.466773°)  |
| NAU       |                | 40800     | 100kW   | Aguada, Puerto Rico<br>Locator: FK68jj                                    | N 18° 23' 55.54"<br>(+18.398762°) | W 067° 10' 39.36"<br>(-067.177599°) |

(1) : JXN is transmitting 6 times a day, each transmission 2 hours: 00:00-02:00, 04:00-06:00, 8:00-10:00, 12:00-14:00, 16:00-18:00, 20:00-22:00 UTC.  
<sup>(6)</sup> : Off-air daily from 7:00 to 8:00 UTC. <sup>(7)</sup> : Off-air on Tuesdays from 12:00 to 19:00 UTC.  
as compiled from <http://sidstation.loudet.org/stations-list-en.xhtml> 2014

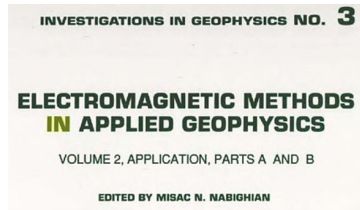
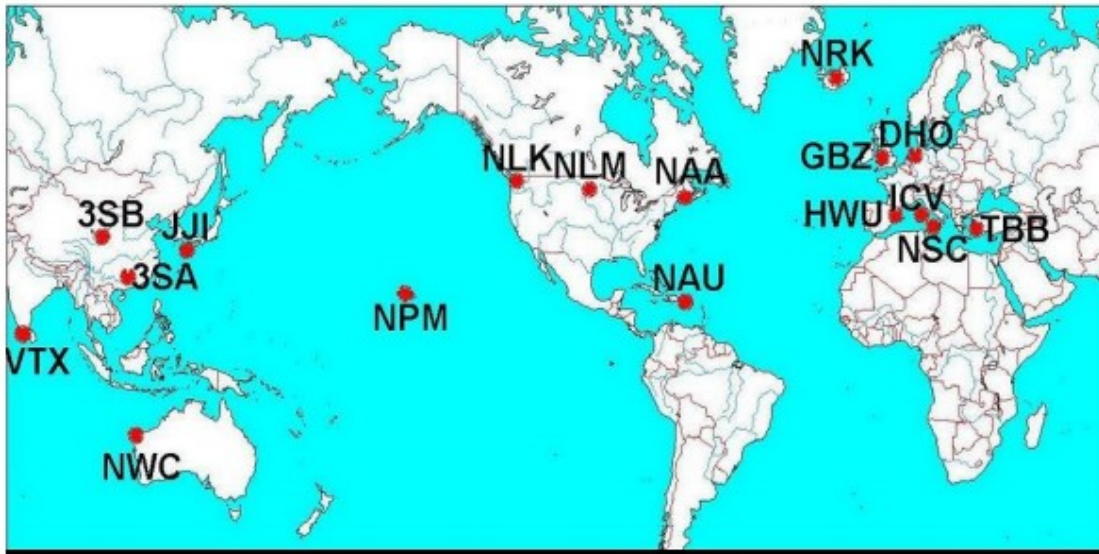
(2) Other Ref. Stanford University ELF/VLF Receiver list 2009



**Celebrating 35 Years**  
Leading the World of **Magnetics**

GEM Systems, Inc.  
135 Spy Court  
Markham, ON CANADA L3R 5H6  
Ph. 905 752-2202 Fax 905 752-2205  
[info@gemsystems.ca](mailto:info@gemsystems.ca) [www.gemsystems.ca](http://www.gemsystems.ca)

Approximate Station VLF Station Locations  
With coverage range shown.  
from Electromagnetic Methods in Applied Geophysics (2008 Printing)



Note: Some station names and stations are no longer valid, since the time of printing.



GEM Systems, Inc.

135 Spy Court

Markham, ON CANADA L3R 5H6

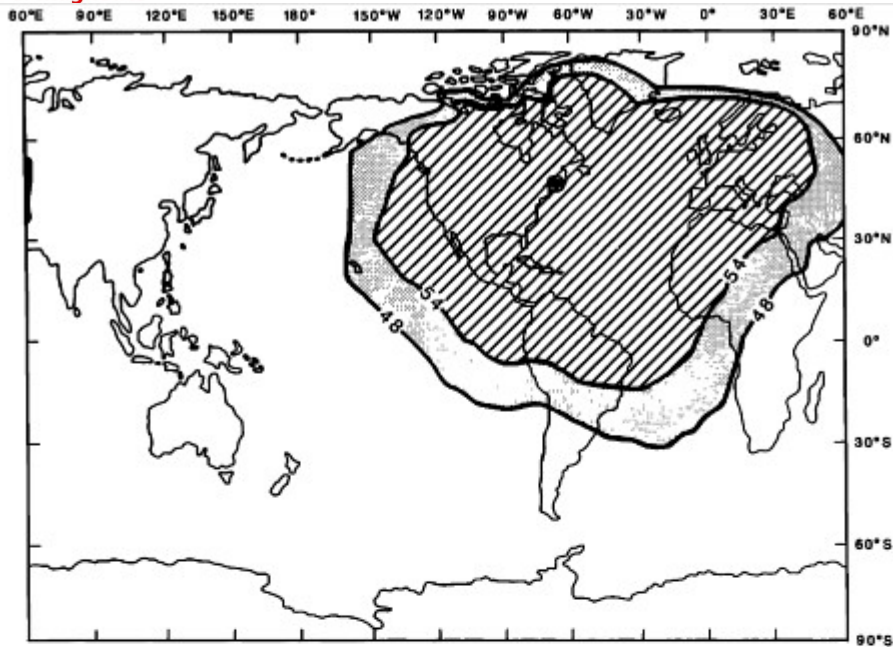
Ph. 905 752-2202 Fax 905 752-2205

[info@gemsystems.ca](mailto:info@gemsystems.ca)

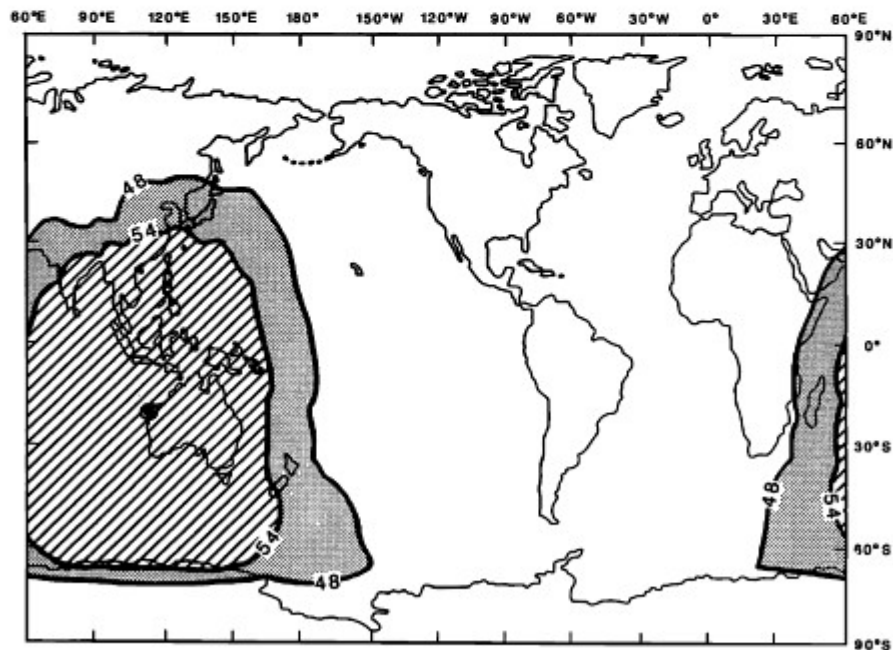
[www.gemsystems.ca](http://www.gemsystems.ca)

Celebrating 35 Years

Leading the World of Magnetics



9 (a)



9 (b)

Fig. 9. Signal level contours in db  $> 1 \mu\text{V/m}$  (a-f after Hauser and Rhoads, 1974). Areas with  $E_z > 0.5 \text{ mV/m}$  (good signal strength) lie within the 54 db contour, those with  $E_z > 0.25 \text{ mV/m}$  (marginal signal strength) lie within the 48 db contour. (a) NAA, Cutler; (b) NWC, Northwest Cape.



GEM Systems, Inc.

135 Spy Court

Markham, ON CANADA L3R 5H6

Ph. 905 752-2202 Fax 905 752-2205

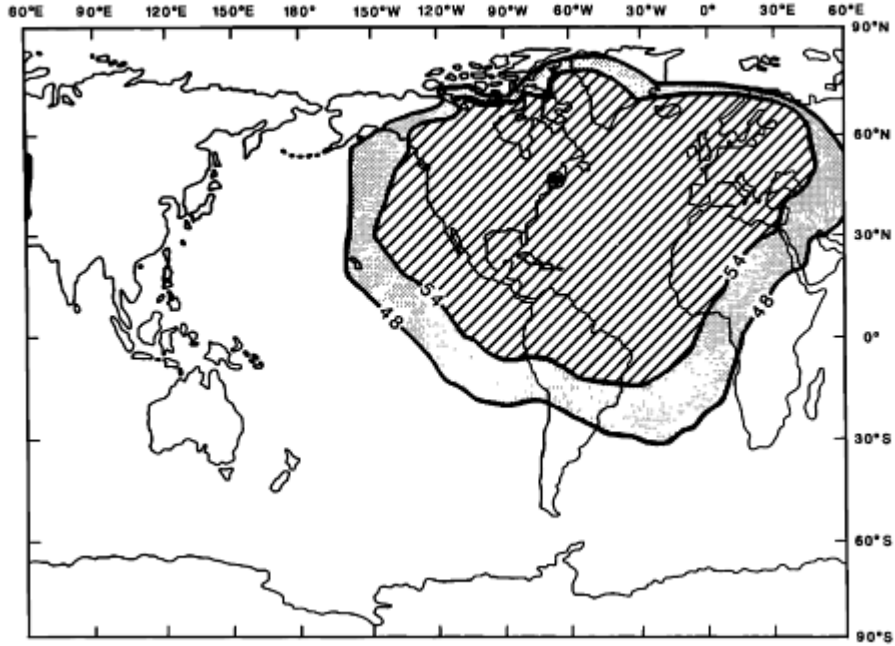
[info@gemsystems.ca](mailto:info@gemsystems.ca) [www.gemsystems.ca](http://www.gemsystems.ca)

**Celebrating 35 Years**

Leading the World of **Magnetics**

530

McNeill and Labson



Cutler, NAA



GEM Systems, Inc.

135 Spy Court

Markham, ON CANADA L3R 5H6

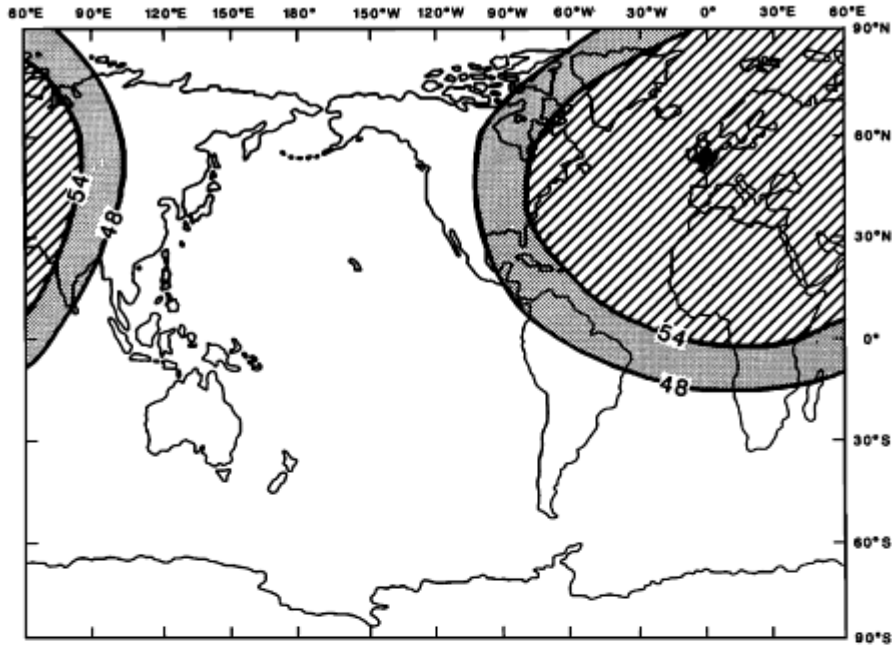
Ph. 905 752-2202 Fax 905 752-2205

[info@gemsystems.ca](mailto:info@gemsystems.ca)

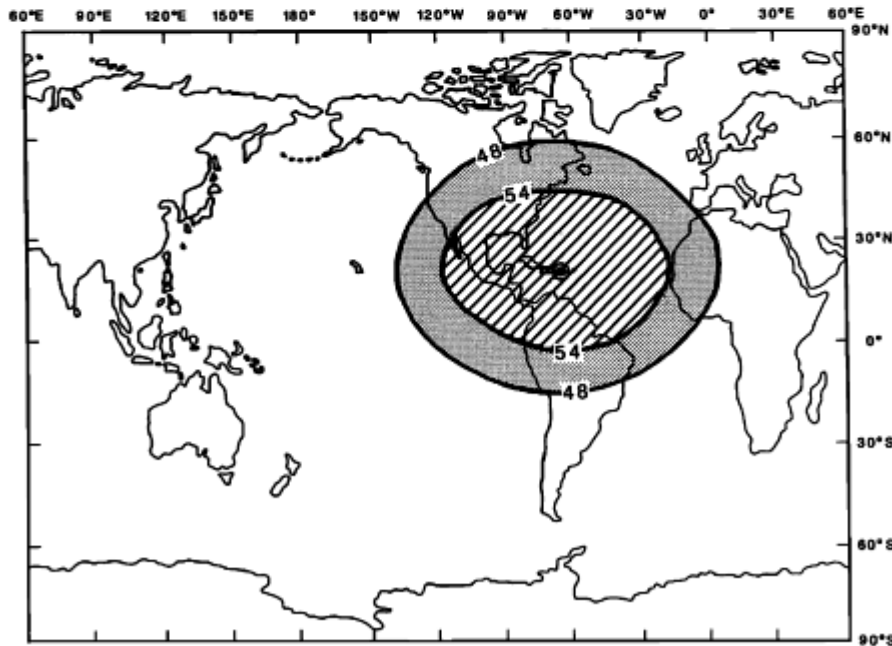
[www.gemsystems.ca](http://www.gemsystems.ca)

**Celebrating 35 Years**

Leading the World of **Magnetics**



9 (g)



9 (h)

Fig. 9, cont. (g) GBR, Rugby; (h) NAU, Puerto Rico.



GEM Systems, Inc.

135 Spy Court

Markham, ON CANADA L3R 5H6

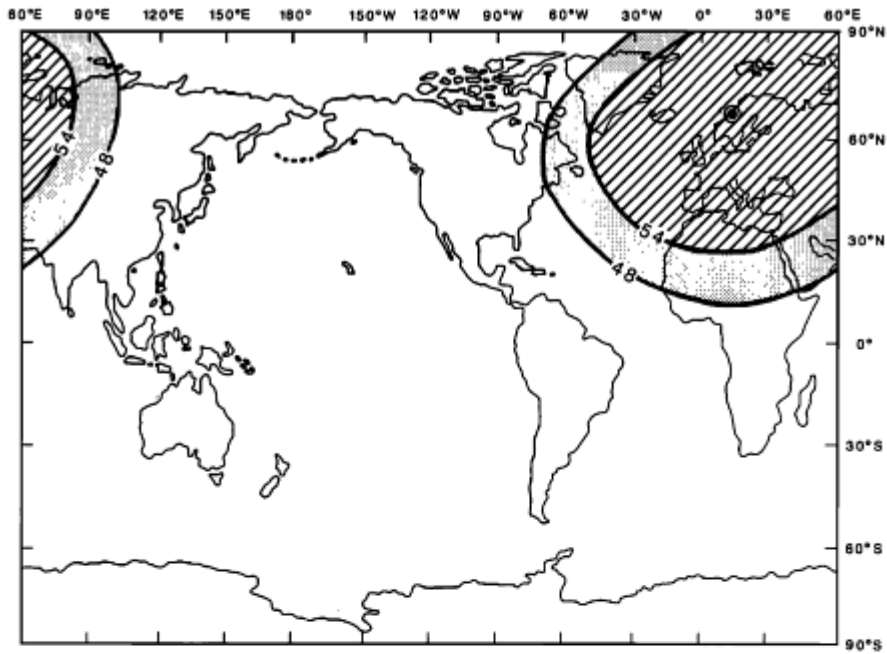
Ph. 905 752-2202 Fax 905 752-2205

[info@gemsystems.ca](mailto:info@gemsystems.ca)

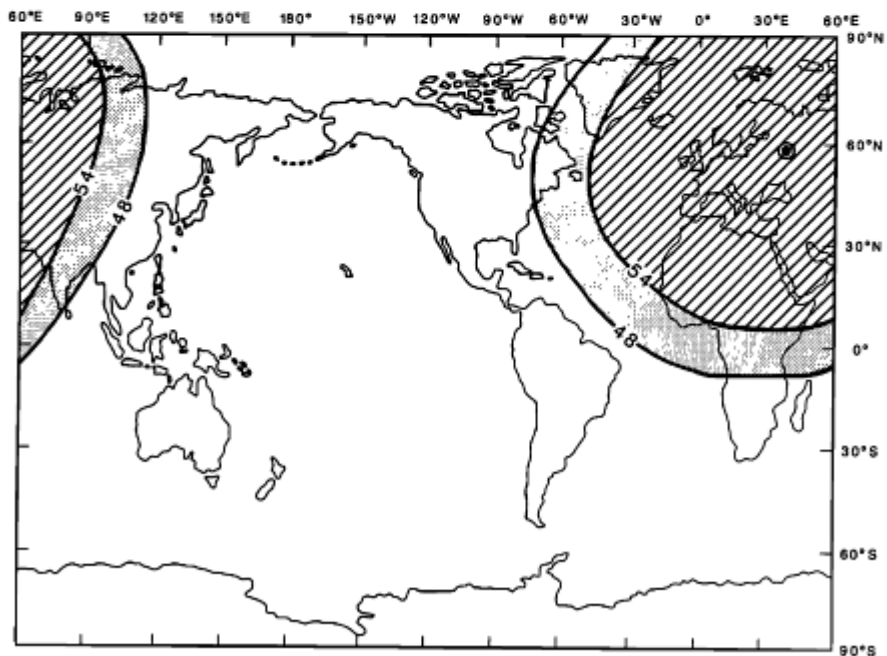
[www.gemsystems.ca](http://www.gemsystems.ca)

**Celebrating 35 Years**

Leading the World of **Magnetics**



9 (i)



9 (j)

Fig. 9, cont. (i) JXZ, Norway; (j) UMS, Moscow;



GEM Systems, Inc.

135 Spy Court

Markham, ON CANADA L3R 5H6

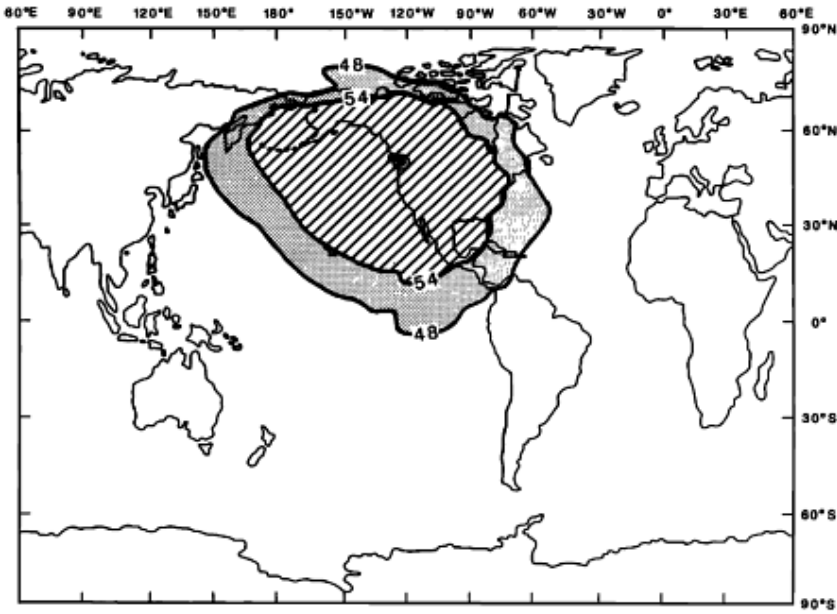
Ph. 905 752-2202 Fax 905 752-2205

[info@gemsystems.ca](mailto:info@gemsystems.ca)

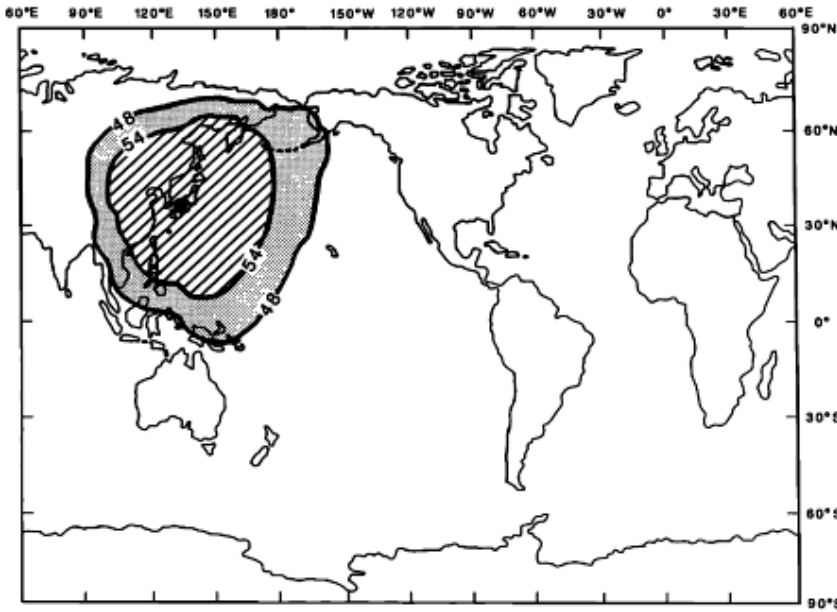
[www.gemsystems.ca](http://www.gemsystems.ca)

**Celebrating 35 Years**

Leading the World of **Magnetics**



9 (c)



9 (d)

Fig. 9, cont. (c) NLK, Jim Creek; (d) NDT, Yosami.





**Celebrating 35 Years**  
Leading the World of **Magnetics**

GEM Systems, Inc.  
135 Spy Court  
Markham, ON CANADA L3R 5H6  
Ph. 905 752-2202 Fax 905 752-2205  
[info@gemsystems.ca](mailto:info@gemsystems.ca) [www.gemsystems.ca](http://www.gemsystems.ca)

(