

Transatlantic DXing

by Richard Eckman

In the past few years DXers have witnessed an ever increasing number of problems which have limited their ability to receive long distance trans-oceanic medium wave stations. Some of the problems are due to natural phenomena - a higher than expected sunspot maximum is one of the primary ones. Others are man-made - increased noise from electrical appliances, television interference, and an ever increasing number of fulltime radio stations.

As we enter the 1980's we are going to have to change some of our methods in attempting to receive European and African MW stations. The long awaited 1978 ITU frequency reallocations were on the whole a mixed blessing for the trans-Atlantic DXer. Obviously, many new stations moved to frequencies better suited for reception in North America but, unfortunately, many of the high-band super-powered stations that were always relatively easy to hear moved to frequencies less favorable for us due to their close proximity to domestic 10 kHz. separation. Recent FCC proposals regarding clear channels and particularly in relation to 9 kHz channel spacing may profoundly affect the nature of TA DXing. If the 9 kHz spacing proposal was implemented in North America TA reception would, needless to say, be adversely affected. In any event, a more serious attitude will be necessary to make TA reception successful and enjoyable - that of combining a basic knowledge of geomagnetic effects on reception and a plan of what to look for based on a particular set of conditions. It is the intent of this article to attempt to fill this need. Before getting to some of the specifics, a few preliminary considerations are necessary.

Equipment

First, a few words on what is necessary to make your TA hunting a success. In the last few years few really good, new receivers have appeared on the market that are adequate for long-distance "split" channel reception. A receiver with reasonably good selectivity is a must unless you're very near the east coast in which case you may be able to use even a mediocre receiver under good conditions. Check reception of the more common Latin American split frequencies (e.g. Belize-834, R. Paradise-1265). If you have trouble separating these stations from domestics then you're going to have a real problem getting 2 and 3 kHz. split frequencies. With conditions not expected to improve appreciably until at least after the sunspot peak in late 1979/early 1980, the very good conditions which allowed TA reception far inland with relatively modest receivers will be far less prevalent than just a few years ago. Many of the used Hammarlunds and other tube-type communication receivers available on the used market are adequate, if not actually your best bet, for serious TA DXing.

The last few years have witnessed a number of new commercial and quasi-commercial loop distributors. The "Space Magnet" series still appears to be one of the more popular brands combining good results and portability. Larger, air-core loops (with pre-amps) will generally outperform the smaller ferrite-core loops but at the expense of portability and likelier at a higher cost. The Sanserino loop appears to be the most popular (if not only) "mass-produced" air-core loop. Larger and better loops generally require more money and some knowledge to build unless you're fortunate enough to have a person willing to do this for you.

Location

If you live within 100 miles of the east coast you obviously are in good shape to hear TAs. As you move further inland it's going to take more skill (and luck) and probably better equipment to be very successful at TA listening. TA reception in the central states is by no means impossible. There were many fine loggings reported from

Colorado, Oklahoma, and Louisiana in the 1978-79 season. West-coast DXers will probably have to wait a few years before they can expect receptions of the caliber of those made in the Pacific Northwest during the last sunspot minimum around 1976. But as a word of consolation, it would seem that west coast TP reception has never been better since the frequency reallocations despite the decline in good conditions!

Recognizing Potentially Good TA Conditions

Moving on to the main emphasis of this article, we have to tackle the question of knowing when to expect decent TA conditions. This can be done with a good degree of accuracy by knowing a little about the basic natural phenomena and their affect on TA reception and by monitoring the propagation reports broadcast by WWV (5, 10, 15, and 20 MHz.) at 18 minutes past each hour.

Seasonal variation is one of the major factors affecting TA reception. Generally speaking, the less hours of sunlight, the better the condition of the nighttime ionosphere for propagating medium wave signals. This would obviously favor the fall and winter months. Also since many Europeans tend to sign on around 0600 local time, the summer months tend to be poor months for receiving these stations since European sunrise occurs much earlier than sign-on time.

Variations in solar activity heavily influence TA conditions. Flares and other disturbances on the sun often cause increased geomagnetic activity. This corresponds to a southern expansion of the auroral zones (donut shaped rings roughly centered about the poles). In general, medium wave signals have a hard time propagating through these charged particle auroral zones. Most European signals received in North America must pass near or through the zone on their way to the U.S. Hence, the lower the geomagnetic activity, the smaller and further north the auroral ring tends to be. To find out what the geomagnetic activity is at any particular time is relatively simple. WWV's aforementioned propagation report broadcasts two indices of significant interest to TA DXers. They are the "A" and "K" indices. The A-index is a daily indication of the earth's geomagnetic activity. Values below 10 generally indicate quiet (i.e. undisturbed conditions) and usually a better chance for TA reception. As the A-index increases the geomagnetic field is more disturbed and often unable to propagate TA signals. Very high values of the A-index (over 30) often are reflected by visual observation of the Aurora Borealis in many parts of the northern U.S. The K-index is similar to the A-index but is updated every 3 hours and is a logarithmic rather than linear scale. Hence, the K-indices vary from 0 to 9 while the A varies from 0 to well over 100. As in the case of the A-index, the lower the value of the K-index the better conditions are likely to be. A number of general cases will be presented below with what can in many (but by no means all) cases be expected on the MW band. These are based largely on personal experience and should not be considered the last word.

- (1) Quiet Conditions: ($A < 5$, $K = 0, 1$) If these conditions persist for several days then it is quite likely that TA conditions will be at their best. The auroral zone is given time to retreat northward thus TA signals can propagate with minimum attenuation. Look for both low-band and high-band TA signals at both local sunset and European sunrise.
- (2) Unsettled Conditions: ($5 < A < 15$, $K = 2, 3$) TA conditions will be mediocre. If they had been good they are likely to decline significantly. High-latitude stations are often wiped out leaving the Southern Europeans dominant. If conditions had been bad they are likely not to improve much unless conditions later become quiet. Often high-band signals are reasonably good around European sunrise despite no TAs received on the low end of the band.
- (3) Active Conditions: ($A > 15$, $K = 4, 5, 6+$) Conditions will generally be poor for TAs. Possibly some Northern African signals will be in depending on the severity of the disturbance. Often, at the beginning of such a disturbance high-band conditions become significantly enhanced with many of the super-powered Germans (among others) in with very powerful signals. This effect is usually strongest above 1400 kHz. and generally evident during the early evening hours (2300-0300 UT).

"Best Bets"

Below is a partial list of some of the more easily received TA stations in descending order of reception. These are based on mine and other DXers reports over the past few years. Articles such as Mark Connelly's TA Strategy paper should also be consulted for additional TA targets.

MONACO: Monte-Carlo 1467 kHz (400 kw) still tends to be one of the easiest TAs to receive. Despite its closer proximity to domestics than prior to the '78 reallocations its southerly location contributes to its ability to make it to North America with relative ease. Reception is best around local sunset (to 0000 UT s/off) with Trans-World Radio religious programming and also at s/on (0445 UT) with its distinctive interval signal and GG religious program.

GERMAN FEDERAL REPUBLIC: The high-band W. Germans are not quite as easy to hear as they were before 1978. Westdeutscher Rundfunk (1593 kHz, 800 kw) remains the easiest. It's NSP and broadcasts a wide variety of music and talk programs all in GG. News, ID, and sometimes an IS are aired on the hour. DLF on 1539 kHz (700 kw) is now difficult to receive due to its proximity to 1540 kHz "clears". SR on 1422 kHz (1200/600 kw) is not too hard to hear on a good high-band evening.

FRANCE: Nice 1557 kHz (300 kw) still tends to be the easiest heard station from France. This is a member of the French Culture (FC) network and seems to have a variable s/on time - usually around 0430 UT. When this is in look for Lille-1377 kHz (300 kw) and Bordeaux-1206 kHz (100 kw). Programming from 0430-0600 UT is usually in a variety of foreign languages so don't be surprised if it's not in FF.

MALTA: The Deutsche Welle relay now operating here on 1557 kHz (600 kw) should give France some co-channel interference in the future with DW programming (in GG) from at least 0300 to beyond 0400 UT. AA local programming has also been heard on this outlet.

TUNISIA: Sfax-1566 kHz (1200 kw). The new superpower station here has been received loudly on the east coast. Sign on is around 0430 UT. Programming consists of the typically heard AA music/chanting and talk often heard on other North African stations.

PORTUGAL: A number of outlets have been heard on a regular basis in the U.S. In particular those on 666, 719, 756, 1035, and 1578 kHz are often received both at local sunset and at European sunrise.

ITALY: Rome-846 kHz (540 kw) has been noted very well in past years when low-band conditions are good. With proposed increase in power to 2000 kw it could become a regular on the east coast in the future. Programming generally consists of light music and multi-lingual news bulletins on the hour and half hour. Genoa-1575 kHz (50 kw) has been received often since the frequency allocations and would appear to be a good high band bet in the future. Interference from Spain on the same channel will be a problem, however.

ALBANIA: Lushnje (Tirana)-1395 and 1458 kHz (500 kw) carry foreign service programming in the early evening (local time) and also at European sunrise. The 1395 outlet tends to be more easily heard with programming to their 2355 UT s/off in the evening. Their distinctive IS is heard between programs on the hour and half-hour. English was (is?) broadcast on 1395 kHz at 2200 UT.

ENGLAND: BBC on 1215 kHz (60 kw) tends to make it out quite well - often to the midwest and west coast around the hours of Eur. sunrise. In addition Crowborough-648 kHz (500 kw) makes it in well when low-band conditions are good with world service programming. Other outlets on 1088 and 1296 kHz with BBC WS are also heard in the U.S.

SPAIN: Several low-band RTVE outlets are heard on the east coast. These include Madrid-585, Sevilla-684, Barcelona-738, and Murcia-855 kHz. These outlets are NSP with programming in SS.

Needless to say, this doesn't exhaust the possibilities. These, however, should be among the more frequent TA receptions made in the coming seasons. Don't forget to report your catches (even if only tentative) to DXWV!