4.3 The future

To cut a long story short, broadcasting on shortwave will continue its sloooooooow but steady decline - while very interesting professional digital utility station radionets are on the rise! Surely, we will not experience a rapid collapse, but we'll continue to lose around 5 % of active broadcast frequencies year after year. That said, even if you would opt for a 4 % decrease, it will take more than 13 years to arrive at halving broadcasters' activity! What's more, we're in 2021 and "DXers" rapidly become extinct. We've foreseen this development already 24 years ago. From its very start way back in 1997, the book in hand has never been written for "DXers", but for global travellers, ordinary shortwave listeners, technically interested people, and the like.

State-of-the-art digital data signals have been tested since 2013 by innovative broadcast (!) stations such as the Voice of America ... This screenshot shows parallel MFSK emissions on 17858.5 and 17861.5 kHz, i.e. on both sidebands ± 1500 Hz from the carrier frequency 17860.0 kHz. The MEM window of the PERSEUS shows our unique userlist.txt Frequency Database with both broadcast and utility radio stations combined - see page 337!
The lengthy debate on the issue of planning of HF broadcasting has now lasted for more than 30 years. Unlike existing world radio handbooks that are actually written for the radio industry and for the broadcast stations, the book in hand is written for the shortwave listener and we can tell our opinion regardless of any dependences and conditions that arise e.g. from advertising contracts accepted by traditional publications: we have to bear the entire production costs ourselves - here in high-cost Germany!

From the view of independent experts in the broadcast field, there are two major factors that make planning in this area so difficult: the lack of sufficient frequency spectrum for HF broadcasting; and the variability of the ionosphere which they consider the most difficult transmission medium with almost unpredictable transmission characteristics. From our own point of view, we would like to add the crucial point: the incompetence of many so-called experts in this field to realize that HF is a limited physical medium that will not submit to the absurd and unrealistic demands by bureaucrats, politicians, and religious zealots for extensive frequency spectrum allocations for pure agitation and propaganda.

Historically, the Cold War - i.e. the period from 1945, the end of the Second World War, to 1991, the collapse of the Soviet Union - has been the state-backed broadcasters' heyday. People all over the world listened to the BBC World Service, Deutsche Welle, and Voice of America. For these broadcasters, it was a comfortable world. Today, China's international broadcasters have programming in more tongues than any other state-backed rival. Since 2000, CRI has doubled its shortwave output, and it even broadcasts from ... Cuba! Says The Economist on 16 June 2018: "China Radio International, part of Voice of China, now broadcasts in 65 languages, up from 43 a decade ago. In 2015 Reuters, a news agency, found that China-friendly news and other programmes made by CRI were airing on at least 33 radio stations in 14 countries, including America, with no acknowledgement of CRI's involvement." On the other hand, international powerhouses such as BBC, DW and VoA are proceeding to shut down their shortwave broadcasts completely. Just one example: The Broadcasting Board of Governors (BBG) is the civilian international media agency of the United States of America. In its "Strategic Plan 2018-2022" (see www.bbgs.gov/wp-content/media/2018/02/BBG-Strategic-Plan-2018-2022_FINAL.pdf ), it openly strives for "... accelerating the migration from shortwave radio to satellite TV, FM, mobile, and social media". Alas, government bureaucrats are unable to understand the simple facts explained below under 4.4!

Traditional shortwave audiences are usually older, poorer, and more rural listeners. Today, we're in 2021 and the big battle is for urban opinion-formers, who consume their media chiefly by satellite and the internet. Dowdy old state monopolies all over the world have been swamped by a panoply of privately-produced fare. Qatari-owned Al Jazeera is the best known of the racier channels and certainly the most impressive new entrant in recent years ... 

Then, there are technical problems. In urban areas all over the world, shortwave radio listeners experience an increasing level of man-made noise by around-the-corner and in-house digital techniques such as powerline communication (PLC), plasma television screens, and so on. Says David Summer K1ZZ, ARRL Chief Executive Officer, in QST December 2014 on occasion of the American Radio Relay League's Centennial Year: "Another threat [to amateur radio] is the rising tide of radio spectrum pollution. You might think that because access to the spectrum is worth billions of dollars at auction, there must be an army of lobbyists working to protect the value of the spectrum against interference from unintentional emitters of RF energy. There isn't. All to often the ARRL and other leading members of the International Amateur Radio Union are lonely voices calling attention to inadequate standards for electromagnetic compatibility and inadequate shielding and filtering in products whose makers ought to know better." In fact, there is virtually no control on all types of cheap electronic goods imported from e.g. China, principally and regularly violating all those ridiculous "EU" technical regulations. Today, everybody knows that the ridiculous "CE" label simply stands for "China Export"!
Talking of that "EU" talkshop ... DRM has basically been an European show - see the official "List of DRM members, associate members and supporters" at www.drm.org. Show, that's it, really! As precisely predicted more than 15 years ago by real experts in the field, their so-called "DRM" has developed into yet another megaflop: too complicated, too late, too expensive. Believe it or not, they initially charged potential users (how many, actually? 150 or 200 dying-out "DXers" or the like?) a considerable amount of money for a pretty complicated DRM decoding PC software that has been developed by the Fraunhofer Institute and financed anyway by, you guess it, the German taxpayer ...

3 (three!) metres precision with GPS and GLONASS and Garmin, while receiving only 9 instead of 12 GPS satellites!

GLONASS (pictured on the left) usually provides 7-8 satellites booming at full level, while Galileo (right) routinely provides just 3-5 usable signals now in 2021 ... and more often than not: nothing at all!

22 May 2019 at 1028 UTC
Mettlo, Sesia Alps, Piedmont, Italy
Position UTM 32T 0440233 5085323, altitude 1921 metres

In the background on the left Monte Rosa 4634 metres
Original picture at www.klingenfuss.org/glonass.jpg

Needless to say, this perfect incompetence is standard fare with all those infamous and megalomaniac "EU" projects. Just think of "Galileo", for example: despite all that gigantic and glorious eurobabble brooohaha, up to this day it simply does not work well. Current talk is of a "reduced functionality" in ... maybe ... who knows ... 2023 or the like. During one full week (!) in July 2019, there was a total failure of those few satellites already launched. We're tickled to death. As experts for the great outdoors, we've been using the superb Global Positioning System (GPS) - invented, installed, owned, and operated, thanks God and the taxpayer, by the United States of America - for more than 20 years, particularly for exploring and mapping remote mountain wilderness areas in countries such as Indonesia, Italy, and Malaysia. GPS works perfect at very low cost, it is extremely reliable around the clock, its precision now achieved is 2-3 meters outdoor and a few centimetres with DGPS, and since 2001 we even give outdoor GPS instruction courses for field work. Many many years ago, we've started with the now legendary "Yellow Etrex" GPS receiver produced by worldwide leading US equipment manufacturer Garmin, with the size of a cigarette pack and weighting only 180 grams. Currently we use several Garmin GPSMap62st and GPSMap64st - and the new GPSMap66st, pictured above! - outdoor handhelds that give us a position - and altitude! - accuracy of a mere 1-2 meters, around the clock and around the world. In one word: superb! "Galileo"? "EU"? Forrrrrgeddddedd!
Regarding professional worldwide communication on shortwave - read: utility radio stations, that we've covered for 52 years as the leading publisher worldwide - digital data transmissions have been a superb success for decades. Contrary to the chaotic situation in HF broadcasting, global technical standards have been agreed upon many years ago, and innovative procedures and protocols resulted in a strong increase in the intelligent use of shortwave frequencies. Just a few easy examples for beginners: ACARS via HFDL currently handles more than 150,000 messages - per day! 3,000+ aircraft of 80+ worldwide customers are equipped with HFDL, and a brandnew ground station just came up on 27 March 2019 in South Korea! Probably because Hat Yai has severe problems - we've not monitored 8825 and 10066 for years ... confirmed by the Future Air Navigation Services (FANS) Interoperability Team - Asia Meeting in Bangkok in July 2017: "HFDL performance consistently failed to meet both the 95 % and the 99.9 % criteria for ADS-C downlink latency. Aeronautical Radio Incorporated (ARINC) proposed to upgrade the HFDL network." What's more, we've not been able to monitor Krasnoyarsk, anywhere, recently ...
ACARS messages via Reykjavik Air, Iceland

ADS-C uplink message to aircraft CN-RGB = Royal Air Maroc Boeing 787-8

Severe turbulence warning to aircraft OY-KAO = Scandinavian Airlines Airbus A320-232

Severe icing warning to aircraft OY-KAO = Scandinavian Airlines Airbus A320-232

*The Periodic Contract is a report sent every ... minutes. It specifies the reporting rate at which the avionics is required to assemble and downlink the requested information to the ground system. The minimum reporting rate is usually not greater than every 14 minutes but can vary to suit the need of the ground station. This procedure allows longitudinal and lateral separation of aircraft in oceanic areas to be reduced to 30 nautical miles each*

Then, there are thousands of HF networks using ALE. What's more, we've got hundreds of CODAN and PACTOR networks worldwide. And so on ...

We've monitored all these digital data transmissions for decades, using top-class professional analyzers and decoders such as PROCITEC and WAVECOM. See the sample screenshots in the product in hand, and enjoy another 20,000 (twenty thousand!) fascinating screenshots on our DIGITAL DATA DECODER SCREENSHOTS ON USB STICK - see page 339 for details!
Guangzhou Radio, China • STS (Severe Tropical Storm) Saudel ...

Weather data and navigational warnings broadcast for ship stations

4.4 Internet, SATCOM and HF Radio in dictatorships: censorship of the Internet and restricted online access vs. free worldwide shortwave reception for everybody

Just for the record, international and worldwide communication such as phone calls, fax messages, e-mail, SMS, data exchange, Internet access and so on relies on

- landline connections;
- submarine cables;
- satellite communication (SATCOM);
- high frequency (HF) / shortwave radio (SW).

Internet is certainly not some mystic new medium descending from Nirvana to Earth. In reality, it is merely some type of computer - e.g. a PC, a smartphone, a laptop, a tablet computer and the like - linked to a communication line: if the latter fails for whatever reason, there is no Internet at all, and that was that. No net ⇒ no Internet, e basta, ragazzi! Connectivity e.g. between Africa and Europe depends totally on the reliability of a few submarine cables and telecommunication satellites. If dictators such as Mr Qaddafi used to shut down the Internet plus all terrestrial mobile phone networks, this left only SATCOM and HF for ordinary Libyans wishing to communicate with the rest of the world.
Sure, SATCOM works perfect and everywhere, but it is pretty expensive, and not every buddy has a friend with an Inmarsat Isat or Iridium 9555 or Thuraya XT mobile phone just around the corner. This goes particularly for brutal dictatorships such as Communist China that kills thousands of so-called "dissidents" per year, the so-called "People's Republic" of North Korea, and so on, where the allotment of Inmarsat and Iridium and Thuraya and similar equipment is extremely restricted - if available at all.

In the case of an emergency or a revolution, that leaves only HF for ordinary people like you and us. Innovative nations such as the United States of America routinely fall back on the amateur radio service as an officially recognized emergency communications medium - as we've seen only recently during and after several tropical cyclones in the Caribbean. After the installation of a HF transceiver, or after the purchase of a cheap 50 Dollars HF radio for listening to SW transmissions from all over the world - i.e. once the initial investment in equipment is made - there are no call costs or ongoing monthly communication line or equipment rentals. Even better: HF cannot be "switched off", and it is very difficult to block - let alone censor! - broadcasts from abroad. What's more, shortwave is not only "terrorist-proof", but "revolution-proof" as well: a mobile communication station using a cheap laptop computer, connected to a radio transceiver operating from a car battery and feeding a simple wire antenna, is much less vulnerable to an attack from outside than high-tech telecom switchboards, cellphone-repeater antenna farms on rooftops of high buildings, and satellite ground stations with large dish antennas. Remember Haiti and Katrina, the Thai and Japanese Tsunamis, supercyclone Yolanda / Haiyan that totally destroyed the Province of Leyte in the Philippines, with a death toll of ~ 5,000+? And Dorian that devastated Abaco and Grand Bahama Island with 200+ mph winds? HF radio is vital!

Says Fred Osterman N8EKU in his 800-pages 3-kilograms masterwork SHORTWAVE RECEIVERS PAST AND PRESENT (see page 338; 4th edition September 2014, ISBN 978-1-882123-02-5, www.universal-radio.com): "Shortwave communication still has a role to play. A quarter of the world's population does not enjoy reliable electricity, much less Internet connectivity. Unfortunately, bureaucrats in many world capitals (except Beijing) have prematurely abandoned shortwave. Do these decision makers believe that people without Internet access simply 'don't count', or do they think everyone in Sudan or the Solomon Islands has an iPad? Do they understand that local regimes can disconnect or filter the web at will? Shortwave radio, and shortwave radio alone, can provide reliable, economical communications largely immune from censorship by oppressive governments."

Says the author of the book in hand: Exactly the same goes for those dull bureaucrats at Deutsche Welle. No buddy watches their boring and stupid DW TV. What we really do need in the jungles of Malaysia, or on top of the remote mountains of Rimella - see the picture on page 201 and another one on www.klingenfuss.org/supergps.jpg -, is a shortwave broadcast in German - and nothing else!

Now consider the absurd decision by leading international broadcasters to drastically reduce their worldwide shortwave transmissions ... or to shut down HF completely! Under the difficult situation described above: just how do BBC, DW, VoA and the like get their message - and mission! - across the border to the poor people that is most in need of independent information - and international support???

Your comments are welcome!
Shortwave Radiogram transmits PSK and MFSK signals mirrored on both sidebands
See page 5 for the zoom on the MFSK emission • New schedule see swradiogram.net

Joerg Klingenfuss:
Confirming your reception of VOA Radiogram on the Voice of America
2 November 2013 1600-1630 UTC 17860 kHz via North Carolina (GVL) voaradiogram.net

QSL via e-mail for a Radiogram via Voice of America digital data test transmission
It shows perfect sample colour graphic files received from listeners all over the world!
Update

The Economist, 26 October 2019
"China's Uighurs: Exposing the gulag

American state-funded radio has shone a light on mass detentions in Xinjiang ... Rarely since the enormities unleashed by Mao Zedong has China seen so egregious an attempt to whitewash an abuse of human rights ... Radio Free Asia (RFA), a station funded by the American government, played a vital role in exposing Xinjiang's horror ... RFA is the only broadcaster outside China that uses the Uighur language. It does so online, by satellite and through short-wave radio."

From the 2020 Shortwave Frequency Guide, page 335:

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<td>As</td>
<td>7580d</td>
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The Economist, 23 November 2019
"China ... totalitarian and proud

Chinese public opinion is not monolithic, and the leaked papers reveal how some Han Chinese officials in Xinjiang resisted the new get-tough regime, even quietly releasing Uighur detainees. - ... an extraordinary leak of official Chinese papers ... documentary evidence that it has built a vast and cruel police state in its far-western region of Xinjiang."