How to Adapt Your DX Contest Strategies for Low Solar Activity

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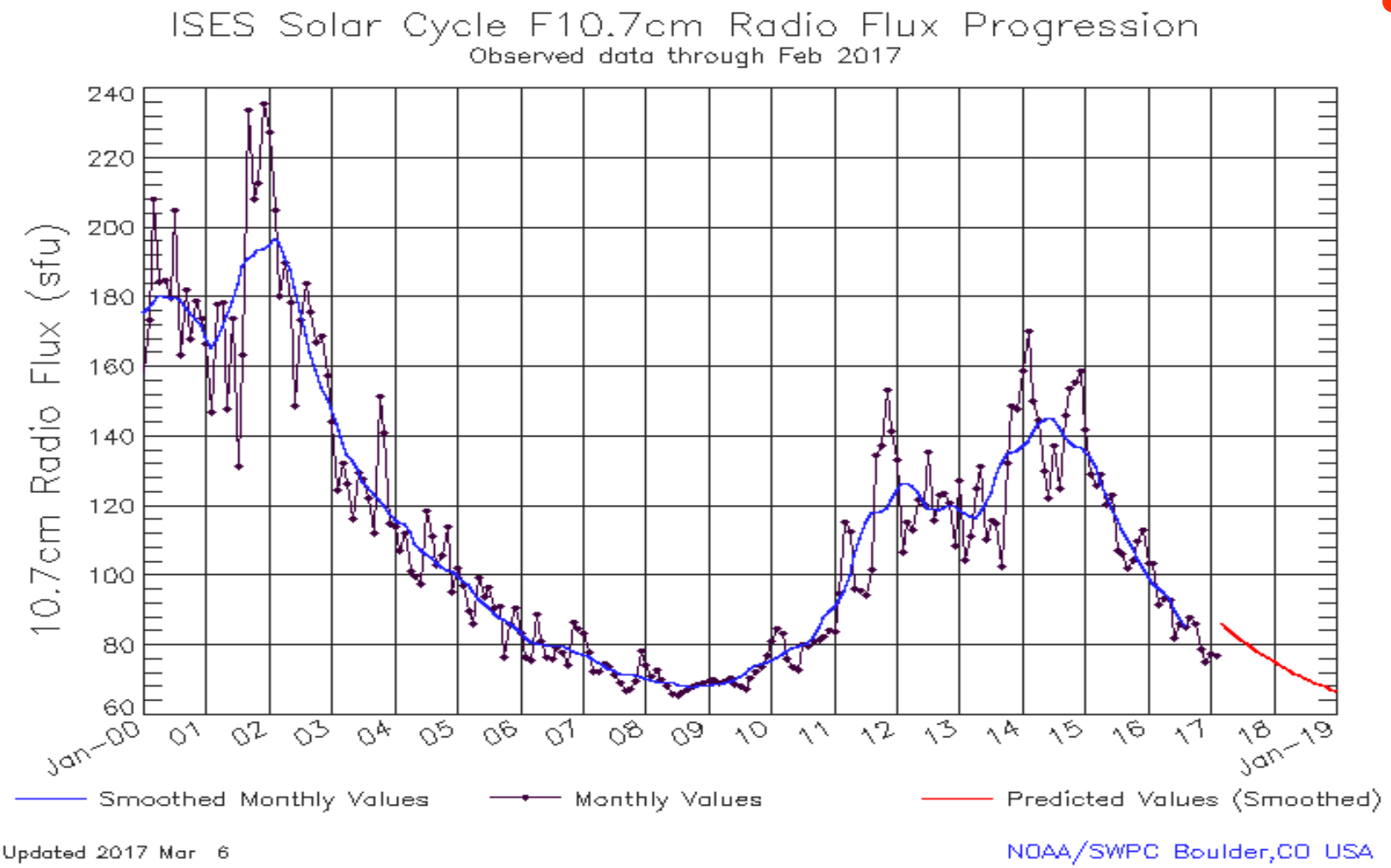
Five Years of Very Low Solar Activity

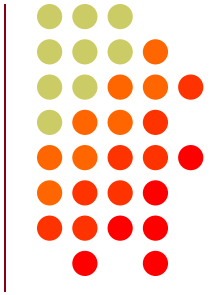
Solar activity should start to increase by 2020



http://services.swpc.noaa.gov/images/solar-cycle-10-cm-radio-flux.gif

What About Solar Cycle 25 ??

Solar Cycle 25 is likely to be another weak cycle, slightly weaker than Cycle 24

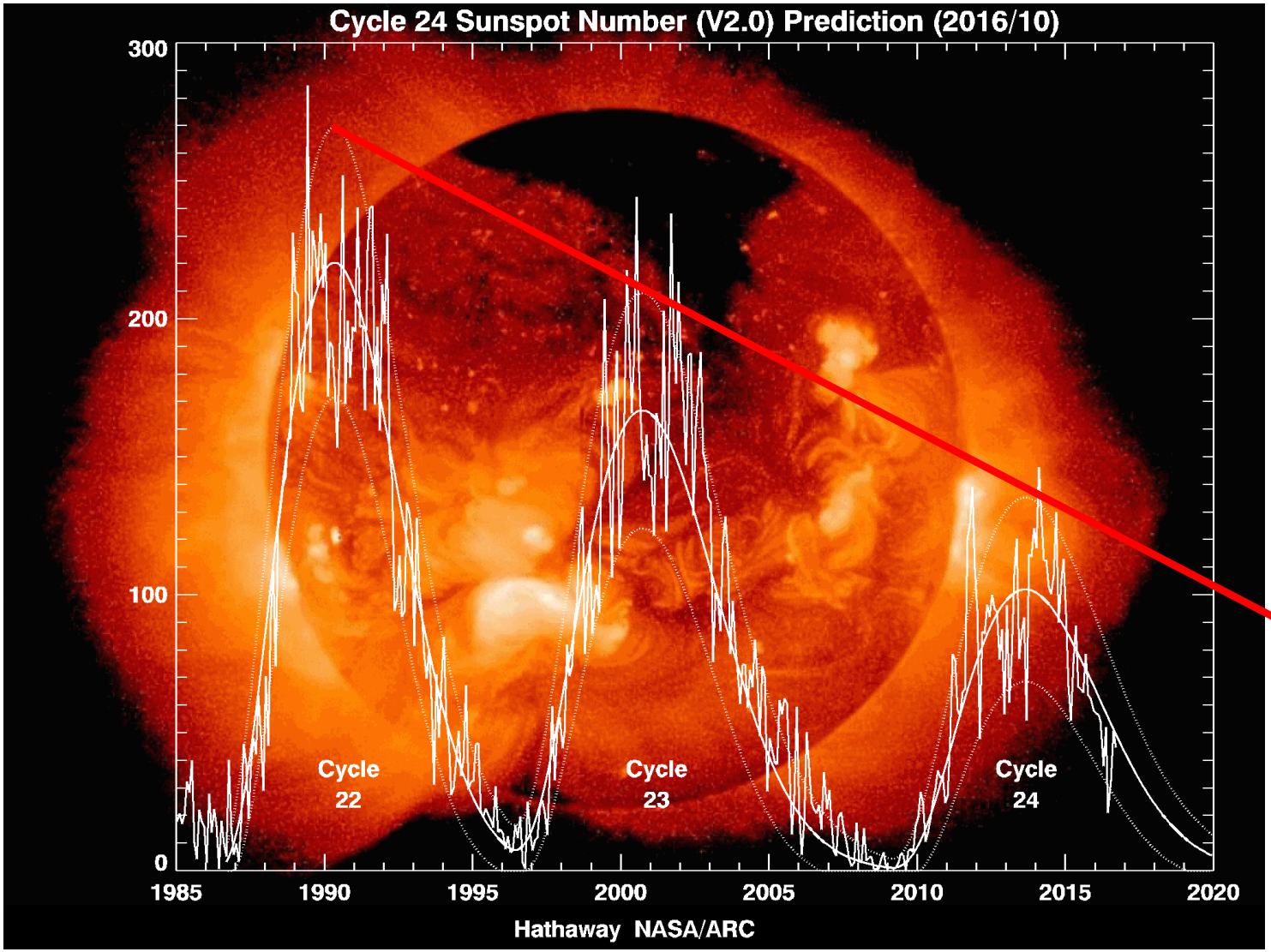


- Solar polar magnetic field strength continues very weak during Cycle 24
  - slightly weaker than the very weak Cycle 23 field strength
  - an early indicator that Cycle 25 may be slightly weaker than Cycle 24
- Spotless days have recently become much more frequent
  - there were 817 spotless days over five years during the last solar minimum
  - weak cycles are preceded by at least 600 spotless days over five years
  - probably more than 100 this year, many more for the next three years
- Geomagnetically quiet days are much more frequent after solar minimum
  - very few solar flares and coronal mass ejections have occurred since 2016
  - there will be less frequent, less intense coronal holes after solar minimum
- Cycle 25 sunspots will be more frequent as solar minimum approaches
  - but solar flux will continue at low levels -- in the 70s – for five more years

High accuracy Cycle 25 forecasting isn't possible until about three years *after* solar minimum

Declining Solar Activity Since Cycle 22

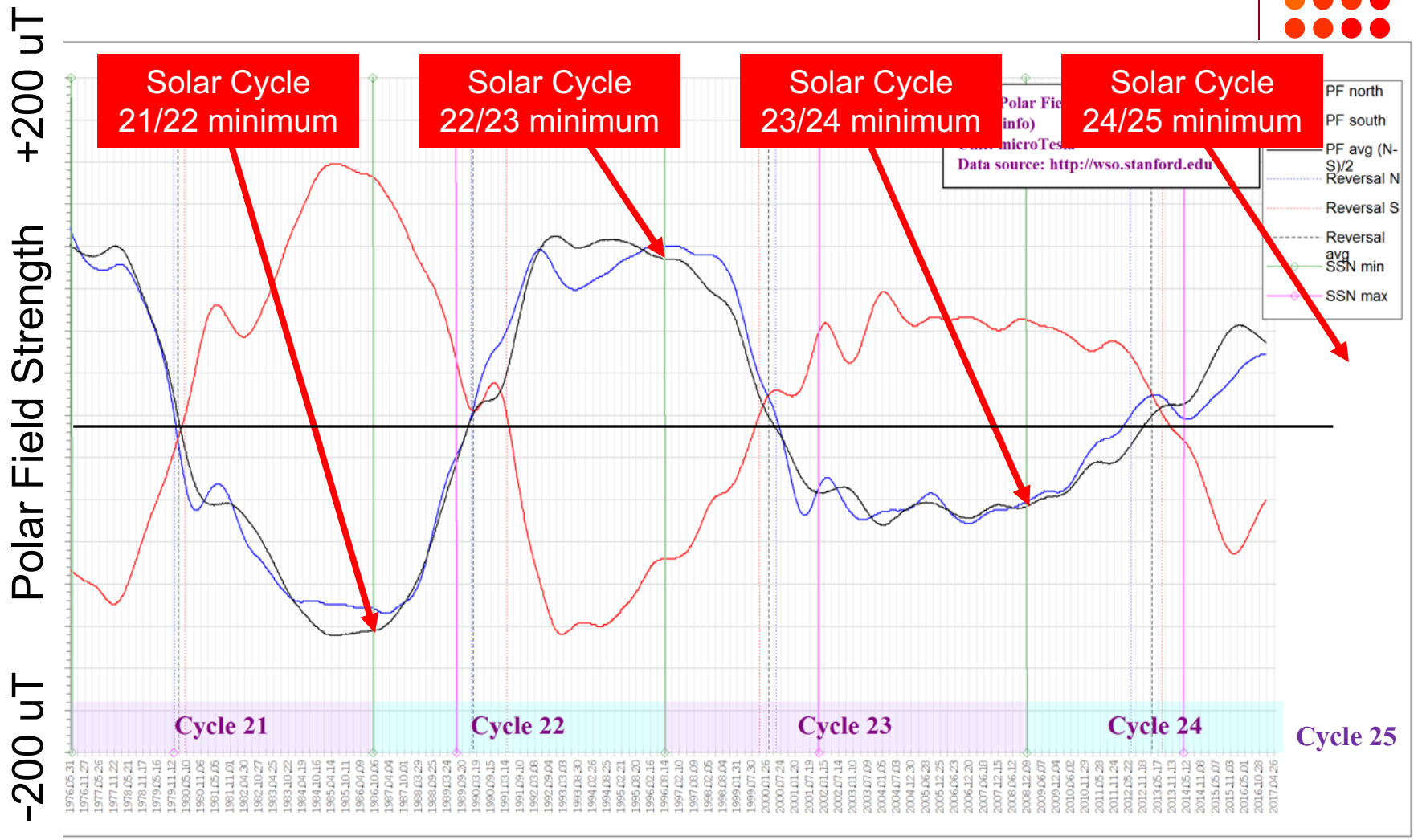
Suggests a weaker Solar Cycle 25



Cycle 25?

The Solar Polar Field Precursor Method

A proven early solar cycle prediction method



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www.solen.info/solar/polarfields/polar.html

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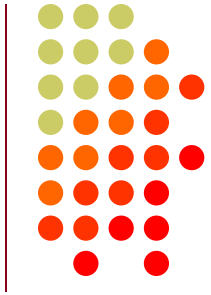
160 Meter Propagation

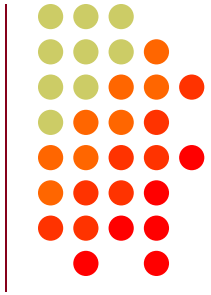
During five years of very low solar activity



- Significantly improved DX propagation
  - stronger signals
  - more reliable openings especially to Europe and Japan
  - consistently low absorption caused by less frequent coronal holes
  - especially after solar minimum in about 2020 until 2022
  - less intense daytime D layer absorption before sunset and just after sunrise
  - less intense night time E layer absorption
- More crowded band conditions
  - especially when there is no strong 40 meter propagation to Europe
- Longer, more regular and stronger worldwide DX openings
  - continuous openings to Europe, Mid-east and north Africa 2200-0830Z
  - frequent strong JA openings at sunrise mid-Nov to mid-Feb 1200-1230Z
  - direct short path polar opening to central Asia will be more frequent

80 Meter Propagation

During five years of very low solar activity



- Significantly improved DX propagation
  - stronger signals
  - more reliable openings especially to Europe and Japan
  - consistently low absorption caused by less intense geomagnetic activity
    - especially for about two years after solar minimum from 2020-2022
  - less daytime D layer absorption before sunset and just after sunrise
- More crowded band conditions
  - especially when there is no strong 40 meter propagation to Europe
- Longer, more regular and stronger worldwide DX openings
  - continuous openings to Europe, Mid-East & north Africa 2130-0830Z
  - regular openings to JA starting before our sunrise ~1130-1300Z
  - direct short path polar opening to central Asia will be more frequent

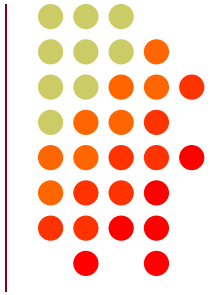
40 Meter Propagation

During five years of very low solar activity

- Nearly 24 hour DX openings during CQWW CW
- Europe, Mid-East and north Africa propagation
  - activity QSYs to 40 meters before mid-afternoon ~1930Z
  - don't miss the strong mid-afternoon/evening openings 2000-0200Z
  - propagation often fades/fails a few hours after sunset 0200-0600Z
  - strong openings usually resume at sunrise in Europe ~0600-0900Z
- Japan, Far East and Central Asia propagation
  - brief direct short path opening at JA sunset 0800-0900Z
  - weak skew path opening at about 240º ~0900-1130Z
  - strongest short path JA opening from the east coast ~1130-1300Z
  - strong long path Asia signals at 150º 2130-2215Z
- VK/ZL and southeast Asia long path 90-150º 2100-2300Z
- Southeast and central Asia long path ~240º ~1130-1300Z

20 Meter Propagation

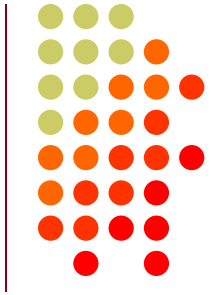
During five years of very low solar activity



- Usually closes well before midnight ~0300Z
  - Sporadic, weak night time Africa & south Pacific openings 0500-0700Z
- Europe, Mid-East and north Africa propagation
  - from before our sunrise until mid-afternoon ~1000-1900Z
    - the opening is sometimes delayed until after sunrise
    - the opening ends earlier in the afternoon than in recent years
- Japan, Far East and central Asia propagation
  - short evening short path opening 2100-0100Z
  - morning short path opening 1300-1500Z
  - both openings are much shorter than in recent years
- South Asia and Mid-East morning long path 1300-1500Z
- VK, ZL and south Pacific mid-afternoon long path 1900-2200Z

15 Meter Propagation

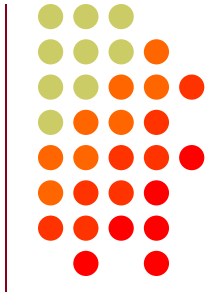
During five years of very low solar activity



- Europe, Mid-East and north Africa propagation
  - from just after our sunrise until early afternoon 1200-1800Z
  - shorter openings than we've enjoyed in recent years
- Japan and Far East propagation
  - weak late afternoon short path opening 2130-2300Z
    - sometimes only via the weak signal skew path to the southwest
  - much shorter openings than we've enjoyed in recent years
- 15M usually closes a few hours after our sunset ~0100Z
  - always stays closed all night

10 Meter Propagation

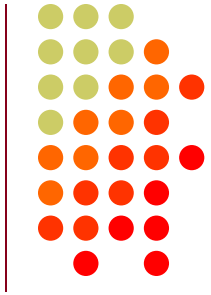
During five years of very low solar activity



- South America, Caribbean and Central America
  - PY and LU activity has increased significantly in recent years
  - usually opens about an hour after our sunrise ~1300Z
  - opening can fade for an hour or two, then return much stronger
  - usually closes about an hour before our sunset ~2100Z
    - always stays closed all night
- Southern Europe and north Africa
  - very weak signals on the SE skew path at 110-150º ~1400-1700Z
- VK/ZL and south Pacific
  - A fairly reliable weak signal opening ~1900-2100Z
- Japan, North Pacific and Far East
  - rare morning weak signal long path opening at 150º ~1300-1400Z
  - rare evening very weak signal skew path 200-240º 2100-2200Z

DX Contest Strategies

for five years of very low solar activity



- High antennas are much more important during solar minimum
- Improve your low band transmitting and receiving antennas!
- Start every DX contest on 40 meters
  - the strong European opening ***often ends a few hours after sunset***
- Capitalize on improved 160 and 80M propagation 2200-0830Z
  - especially important when 40 meters is not strongly open to Europe
- Strong 40 meter opening after sunrise in Europe 0600-0900Z
- 160, 80 and 40 meter openings to VK, ZL and JA 0900-1230Z
- 20M European opening starts before sunrise 1000-1900Z
- 15M European opening starts just after sunrise 1200-1800Z
- 10 meters opens primarily to the south 1300-2100Z
- Strong 40M afternoon/evening openings to Europe 2000-0300Z
- 20 meter evening openings to Japan 2100-0100Z