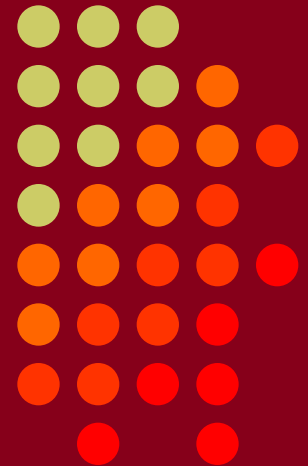


Adapting Your Contest Strategies to the Rapidly Declining Solar Cycle 24

- Two more years of declining solar activity
- Then at least three years of solar minimum



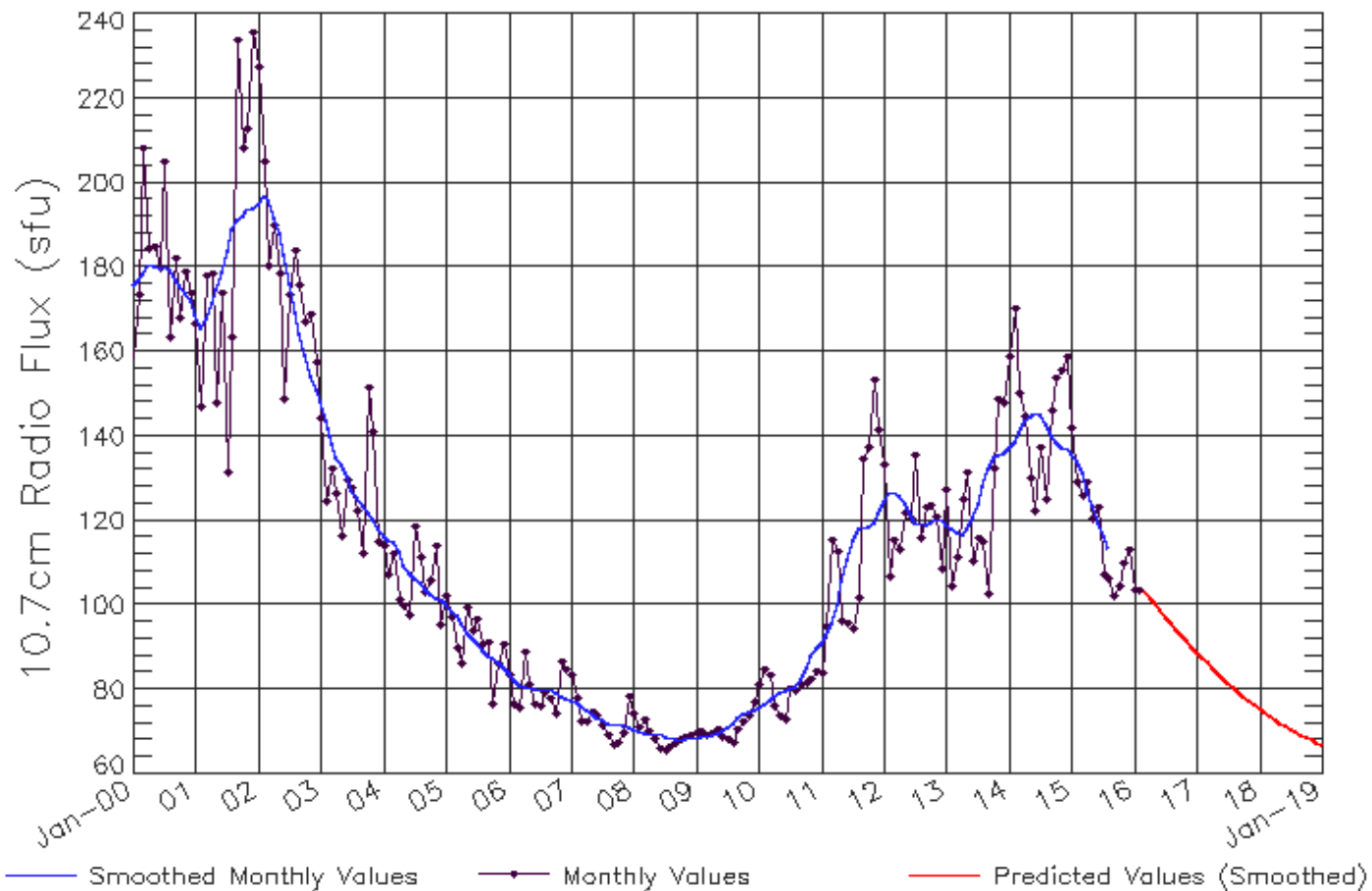
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Two More Years of Declining Solar Activity Then Three+ Years of Solar Minimum

ISES Solar Cycle F10.7cm Radio Flux Progression
Observed data through Feb 2016



CTU Updated 2016 Mar 7

CONTEST
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NOAA/SWPC Boulder, CO USA

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What About Solar Cycle 25 ??

Precursors of a *possibly* weak Solar Cycle 25

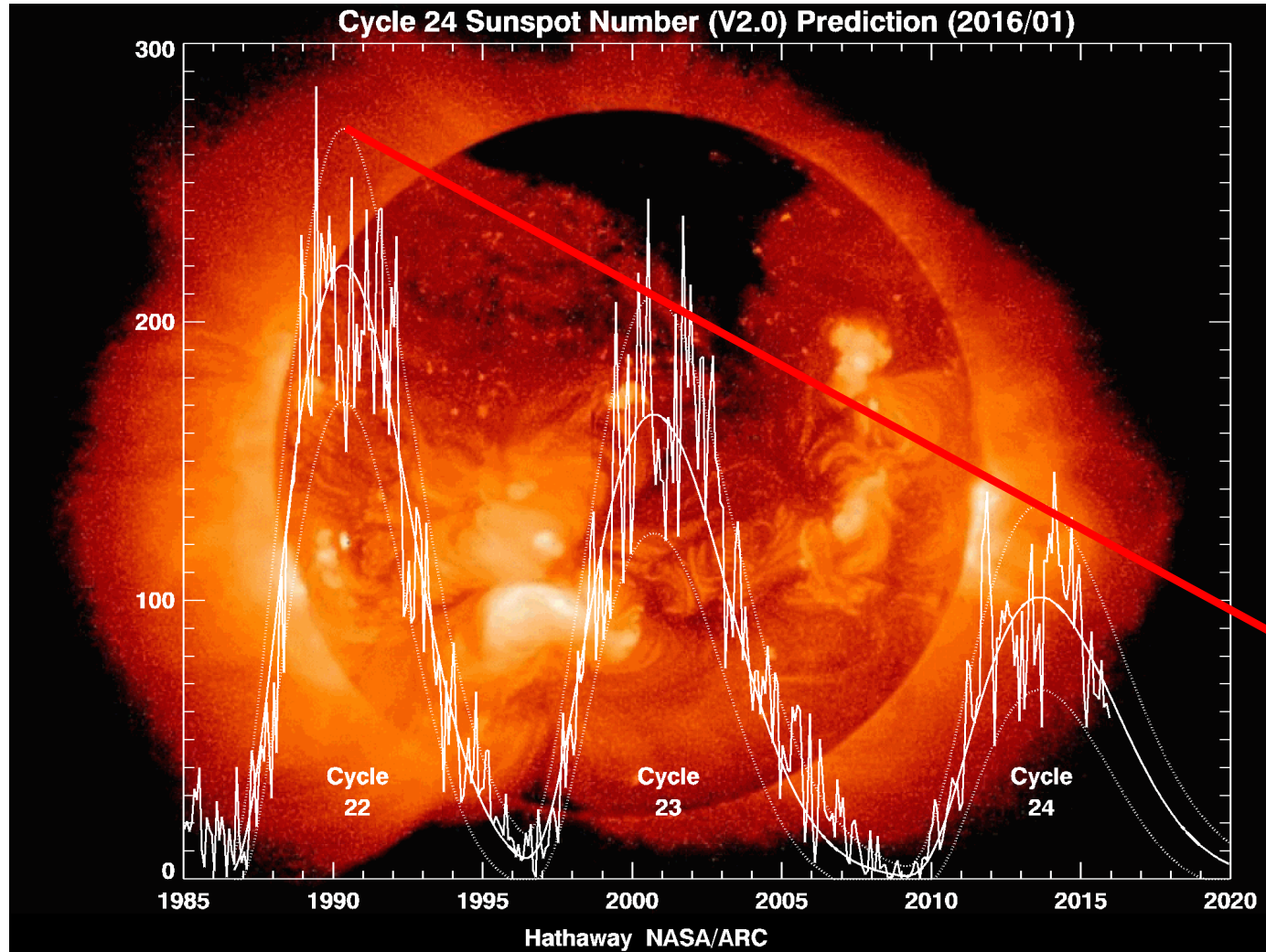
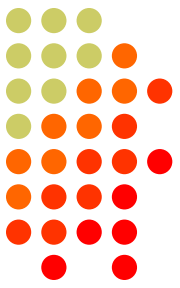


- Unusually weak solar polar magnetic field strengths
 - field strengths should reach their peak between 2018 and 2020
 - www.solen.info/solar/polarfields/polarfields.jpg
- Unusually large numbers of spotless days
 - possibly starting later this year or next year
- Unusually quiet geomagnetic field from 2018 to 2020+
 - reported by the A-index
- Unusually late appearance of new Solar Cycle 25 sunspots
 - new Solar Cycle 25 sun spots should appear by 2020
- Unusually long solar minimum
 - solar flux in the low 70s persisting after 2020

**Accurate Cycle 25 forecasting is not possible
until about three years *after* solar minimum**

Declining Solar Activity Since Cycle 22

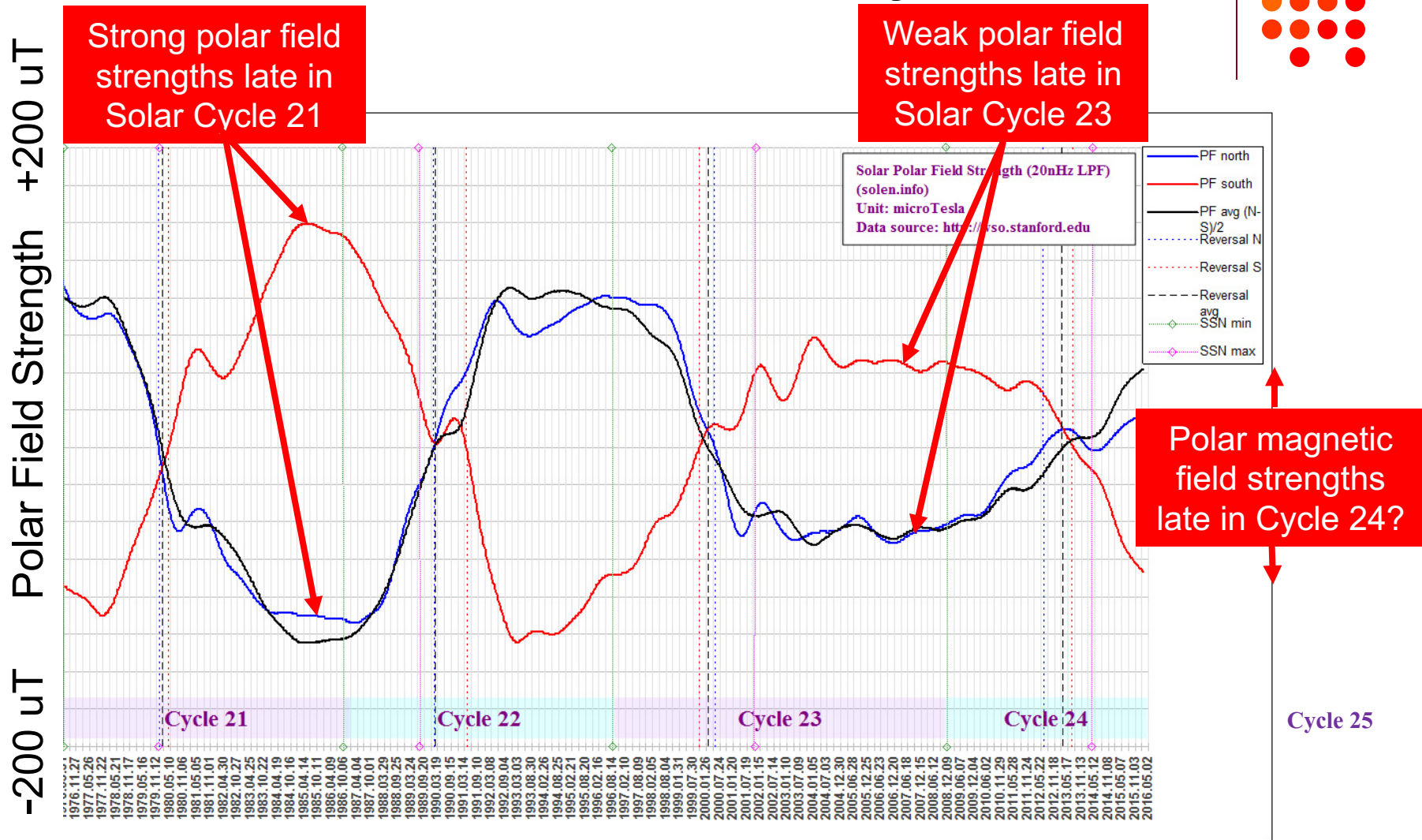
Suggests a Weak Solar Cycle 25



→ Cycle 25?

The Sun's Polar Magnetic Field Strength

A Reliable Precursor of Solar Cycle 25





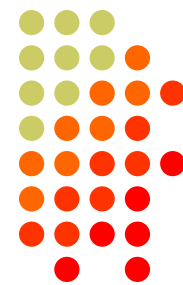
160 Meter Propagation

During the Two Year Decline to Solar Minimum

- Improving DX propagation
 - stronger signals
 - more reliable openings especially to Europe and Japan
 - lower geomagnetic activity
 - especially as we approach solar minimum in ~2020
 - declining daytime D layer absorption before sunset and after sunrise
 - declining nighttime E layer absorption
- More crowded band conditions
 - especially when there is no strong 40 meter propagation to Europe
- Longer and more regular worldwide openings
 - reliable openings to Europe, Mid-East & north Africa 2130-0830Z
 - more frequent openings to JA at our sunrise ~1200-1230Z

80 Meter Propagation

During the Two Year Decline to Solar Minimum



- Improving DX propagation
 - stronger signals
 - more reliable openings especially to Europe and Japan
 - lower geomagnetic activity
 - especially as we approach solar minimum in ~2020
 - declining daytime D layer absorption before sunset and after sunrise
 - declining nighttime E layer absorption
- More crowded band conditions
 - especially when there is no strong 40 meter propagation to Europe
- Longer and more regular worldwide openings
 - continuous openings to Europe, Mid-East & north Africa 2100-0830Z
 - regular openings to JA starting before sunrise ~1130-1300Z

40 Meter Propagation

During the Two Year Decline to Solar Minimum



- Nearly 24 hour DX propagation during CQWW CW
- Europe, Mid-East, north Africa propagation
 - activity QSYs to 40 meters earlier in the afternoon ~1930Z
 - **don't miss the strong mid-afternoon European openings!**
 - beginning at about 1930Z to 2030Z (earlier in New England)
 - propagation may fail several hours after our sunset at about 0100Z
 - strong openings often resume at European sunrise: ~0600-0900Z
- Japan, Far East and Central Asia propagation
 - brief direct path opening starting before JA sunset: 0800-0900Z
 - weak skew path opening at ~ 240 degrees azimuth ~0900-1130Z
 - the strongest opening from the east coast: ~1130-1300Z
 - direct path strong signals for an hour or more
 - strong long path signals at 150 degrees azimuth: 2130-2215Z
- VK/ZL and south Asia long path propagation 2100-2300Z
- south and central Asia long path propagation ~1200-1300Z

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20 Meter Propagation

During the Two Year Decline to Solar Minimum

- Usually closes well before midnight ~0300Z
 - usually stays closed all night
- Europe, Mid-East, north Africa propagation
 - from before our sunrise until mid afternoon ~1000-1900Z
 - the opening may be delayed to until sunrise or later
 - shorter openings than we've enjoyed in recent years
- Japan, Far East and central Asia propagation
 - afternoon short path opening from 2130Z to about 0000Z
 - morning short path opening from about 1300Z to about 1500Z
 - significantly shorter openings than we've enjoyed in recent years
- Long path to VK/ZL and south Asia starting in mid-afternoon
 - starting about 1900Z until our sunset
- Long path to south Asia begins about an hour after our sunrise
 - starting about 1300Z until about 1500Z

15 Meter Propagation

During the Two Year Decline to Solar Minimum



- Usually closes a few hours after our sunset ~0200Z
 - always stays closed all night
- Europe, Mid-East, north Africa propagation
 - from about our sunrise until mid-afternoon 1200Z to about 1800Z
 - much shorter openings than we've enjoyed in recent years
- Japan, Far East and central Asia propagation
 - afternoon short path opening from 2130 to about 0000Z
 - morning long path opening from about 1300Z to about 1400Z
 - polar opening to central Asia from about 1400 to about 1600Z
 - much shorter openings than we've enjoyed in recent years

10 Meter Propagation

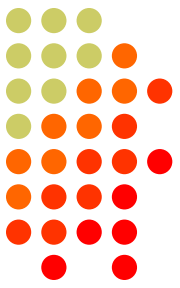
During the Two Year Decline to Solar Minimum



- Usually starts to open about an hour after our sunrise ~1300Z
- Usually closes a few hours after our sunset ~0000Z
 - always stays closed all night
- Europe, Mid-East, north Africa propagation
 - short path propagation becomes less frequent and much shorter
 - weak signal skew paths (110-150 degrees) typically ~1400-1700Z
- Japan and Far East propagation
 - short path propagation is extremely unusual
 - morning long path starting at about 1300Z to about 1400Z
 - evening skew paths (200-270 degrees) from ~2130Z to 2230Z

DX Contest Strategies

for the Two Year Decline to Solar Minimum



- Improve your low band antennas this summer!
- Start the contest on 40 meters
 - the strong European opening could end after just a few hours
- Capitalize on improving 160 and 80M propagation 0200-0830Z
 - mainly when 40 meters is not strongly open to Europe
- Look for a strong European opening on 40 meters 0600-0900Z
- 160, 80 and 40 meter openings to VK, ZL, JA 0900-1230Z
- Look for the start of the 20M European opening 1000-1200Z
- Look for the start of the 15M European opening 1200-1400Z
- Check 10 meters frequently for propagation 1300-2200Z
- Start of the strong 40M meter European opening at ~2000Z
- Look for short 15 and 20 meter JA openings 2130-2300Z