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# COCORAHS CANADA UPDATE WEA 1012 - 2024



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Canada 

# OUTLINE

- Network Expansion
  - Recent Promotional Work
  - Volunteer Follow-Up
  - Data Usage
  - ET and Condition Monitoring
  - Data Quality
  - Questions
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# COCORAHHS CANADA

- In Canada CoCoRaHS operates as a non-profit and is managed by Weather Innovations in Chatham Ontario
- Management/Coordinator assistance provided by CoCoRaHS USA, ECCCC and AAFC
- Funding support provided by ECCCC and AAFC (two of the major data users)
- National Coordinator is Mansi Patel (Chatham ON)
- ECCCC liaison is Doug Leonard (Halifax NS)
- AAFC liaison is Trevor Hadwen (Regina SK)



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# NETWORK EXPANSION

- Slow but steady network expansion in most regions with currently just over 800 active stations (reported over the last year)
- New registrations number 10-15/month on average
- ECCC/AAFC actively assisting a couple times per year with promotions on Social Media accounts (FB/X) and the ECCC WeatherCan App
- Most recent promotion in April/May 2024 resulted in about 70 new registrations over a 4-week period
- Active stations include:
  - ON - 339 active stations
  - QC - 34 active stations
  - Atlantic - 178 active stations
  - West (provinces) - 255 active stations
  - North - 6 active stations

## Join a citizen-science weather network!

CoCoRaHS Canada (**C**ommunity **C**ollaborative **R**ain **H**ail and **S**now) needs more participants! Join this citizen-science weather community, where volunteers measure and report precipitation daily through the website or app.



Although there are more than 700 hundred CoCoRaHS volunteers across Canada, there are still holes to fill in the network, especially in the western and northern regions. Covering as large an area as possible with volunteer stations is important because precipitation can vary significantly, even over relatively short distances.

## Important insights for meteorologists

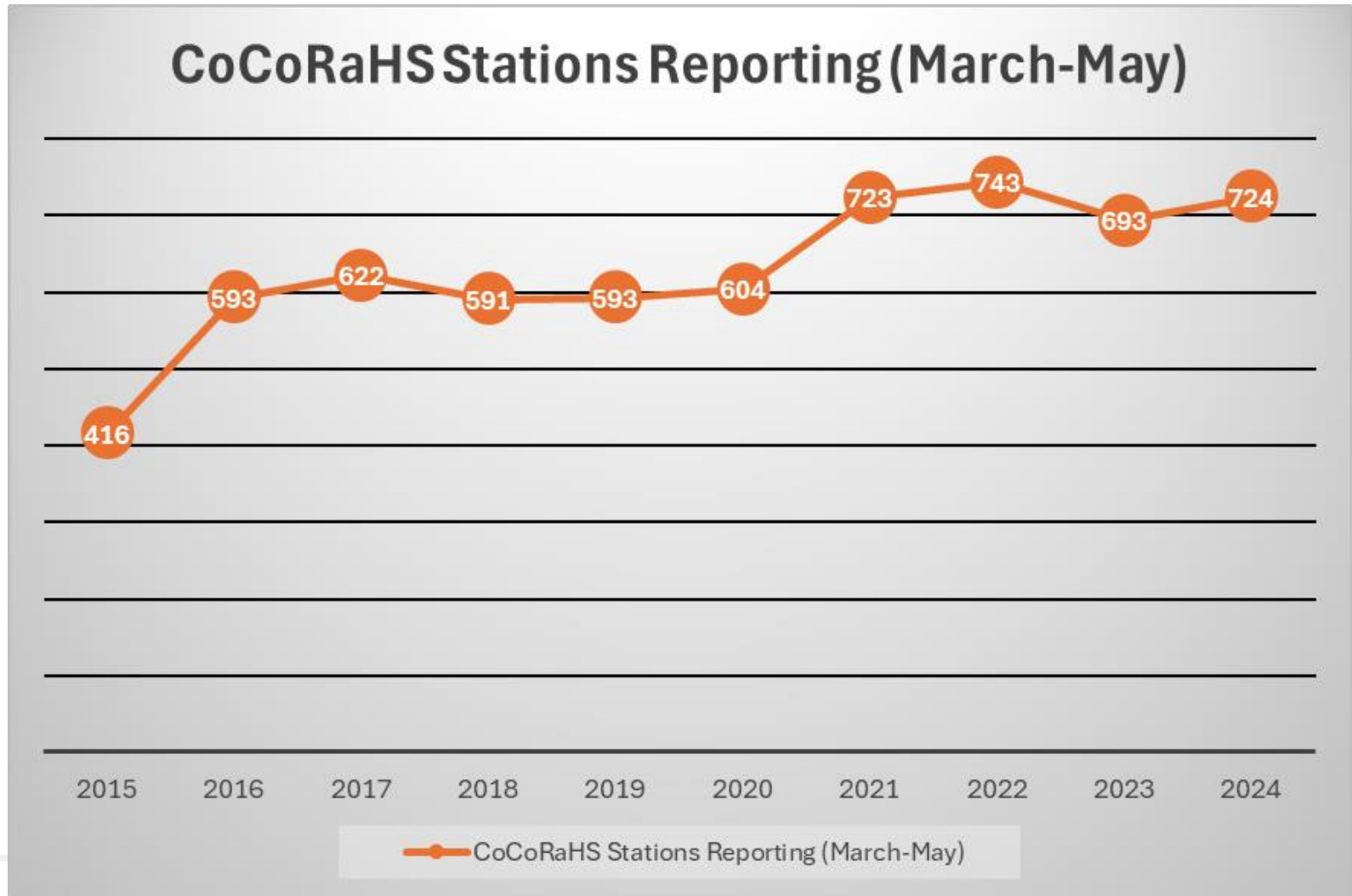
In Canada, our meteorologists use this data to

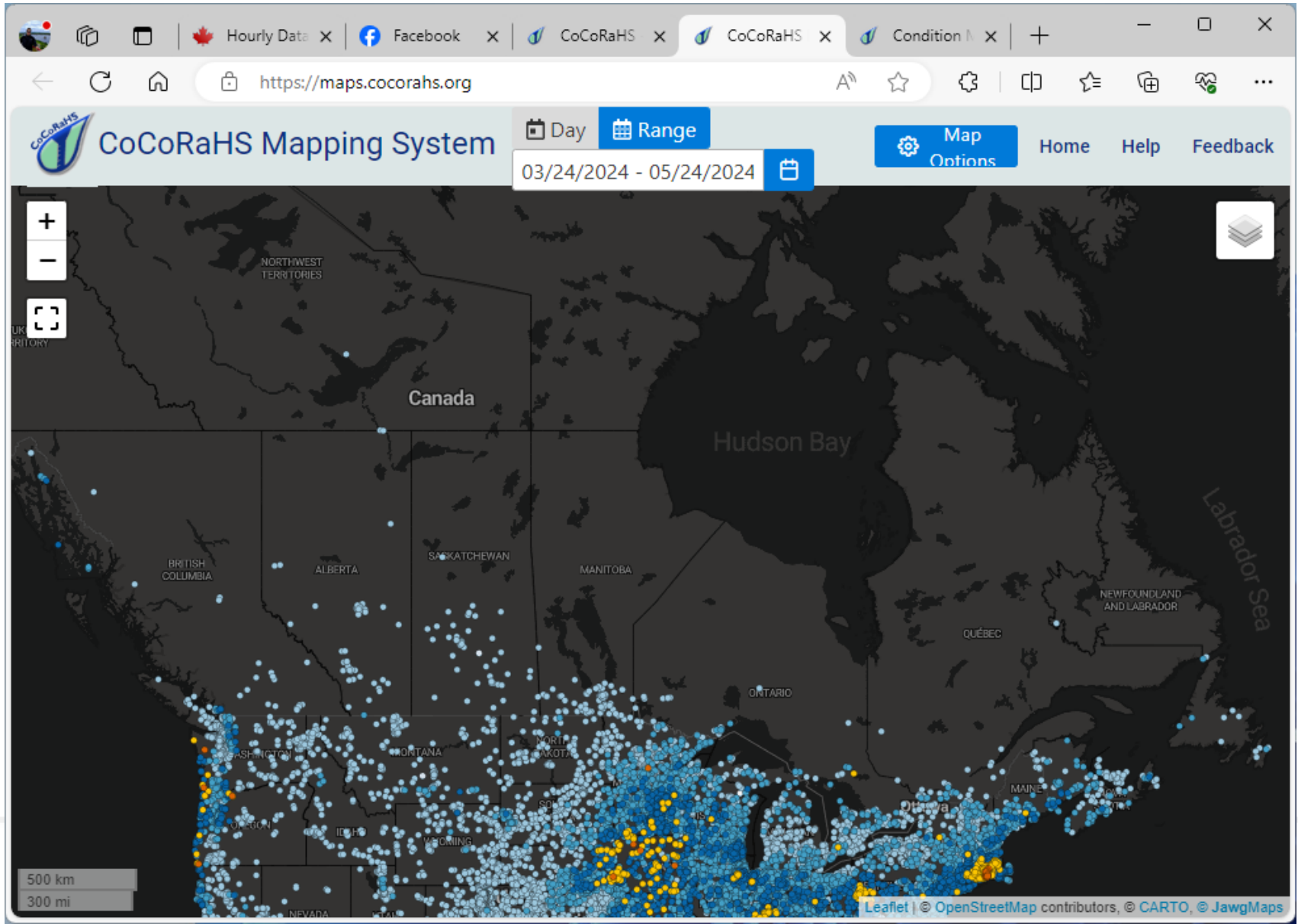
# NETWORK EXPANSION

- Working with high schools and elementary schools across Canada (recently added some in Alberta, Saskatchewan and Nunavut)
  - Planning on working with the Saskatchewan Water Security Agency Flow Forecasting and Operations team to see how they can partner with CoCoRaHS
  - We have sent bulk orders of gauges to different organizations distribute to volunteers;
    - MINISTRY OF ENVIRONMENT, CLIMATE CHANGE, & FOOD SECURITY (MÉTIS NATION, BC)
    - HURRICANE FIONA FUND, DIOCESE OF NS & PEI
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# NETWORK GROWTH LAST 10 YEARS

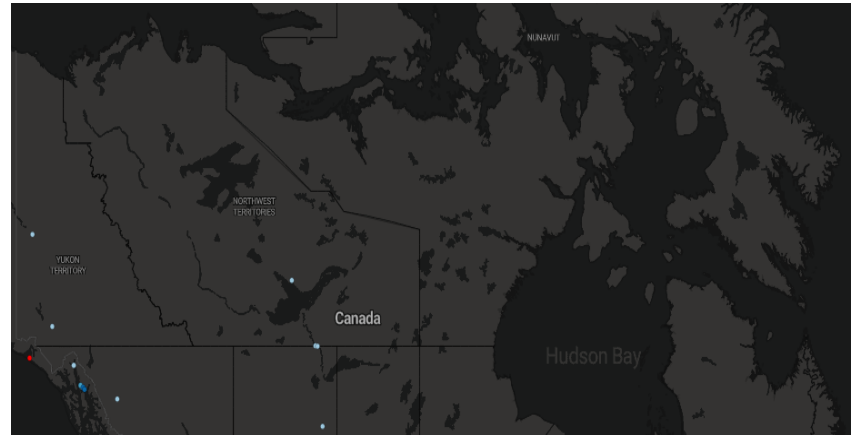
(STATIONS REPORTING MARCH-MAY PERIOD)





# OTHER RECENT PROMOTIONAL WORK

- Last year contacted several organizations in the North in an effort to promote/expand the network:
  - SmartIce - interest in having ice observers participate
  - Gov NWT Hydrometric Program - working on recruiting
  - ECCC Services in West offered to help with outreach in NWT & YT
  - Arctic Science Partnership – some interest?
  - LEO Northern BC – interested?
  - A few others contacted but no responses
- Follow-ups done with all of the above but so far there hasn't been much uptake in new registrations
- Recruiting is challenging in the North due in part to fatigue dealing with many requests for help with environmental monitoring. Volunteerism is less popular/feasible than across the south. Gauges offered at no cost to Northern volunteers to help with recruitment challenge



# CHALLENGES

- Retention rate of volunteers relatively low ~ 30% of all registered are actively reporting (similar to the US): As of May 2024:
  - 2923 registered volunteers (2011-2024)
  - 819 “Open” stations
  - 812 reported in the last year
  - 724 reported in the last 3 months
  - Need for on-going recruitment
- Winters can be harsh and measurements more difficult/time consuming in the winter
  - Some volunteers do not participate in the winter (eg. Feb 2024, 484 reporting, May 2024, 702 reporting)
  - We have lost some as a result of challenging winter conditions (eg. NL)



# VOLUNTEER FOLLOW-UP

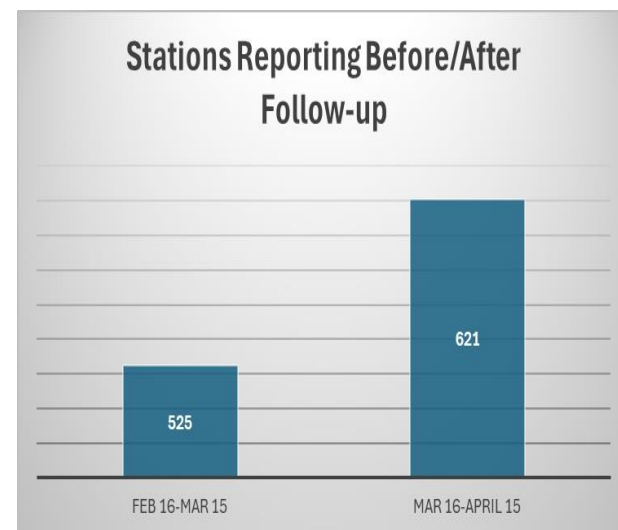
- Follow-up done this past March with all volunteers who had not reported in over a month or registered but not yet submitted a report
    - Only contacted stations marked as “Reporting”
    - Follow up message went out to just over 400 volunteers
    - Try to do this once every 1-2 years in part to nudge volunteers to start reporting, address any issues and update the database (ie close any stations that no longer want to participate)
    - Typically done in the early fall to avoid those that normally take the winter off
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# VOLUNTEER FOLLOW-UP

- Some interesting responses:
    - About 50% responded and the vast majority were positive
    - Most responses were from those who typically take the winter off
    - Many said they don't report in the winter due to concern about the gauge cracking
    - Some were unaware of the option to report in the winter or didn't have a "winter kit"
    - Several reported broken gauges and weren't sure how to get a replacement
    - Others indicated various issues like moving, sickness, mobility issues, extended travel, seasonal site, problems logging-in
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- A few who moved wanted to re-join the network

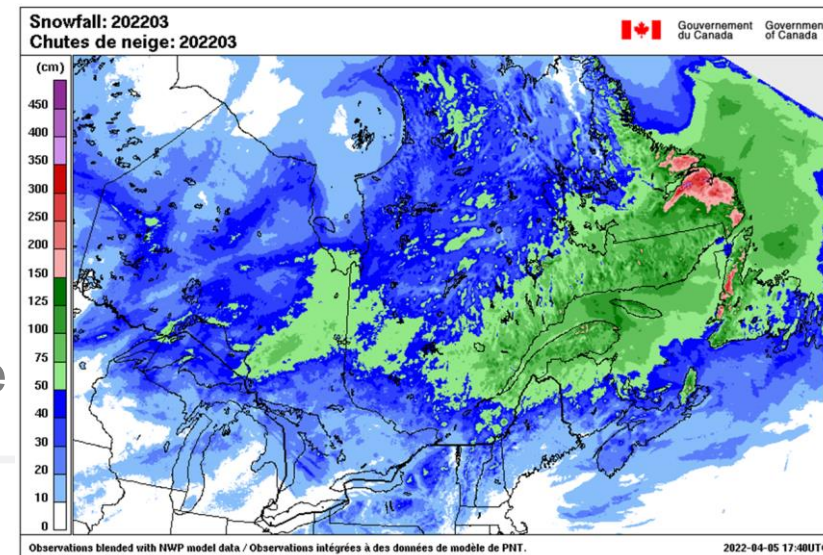
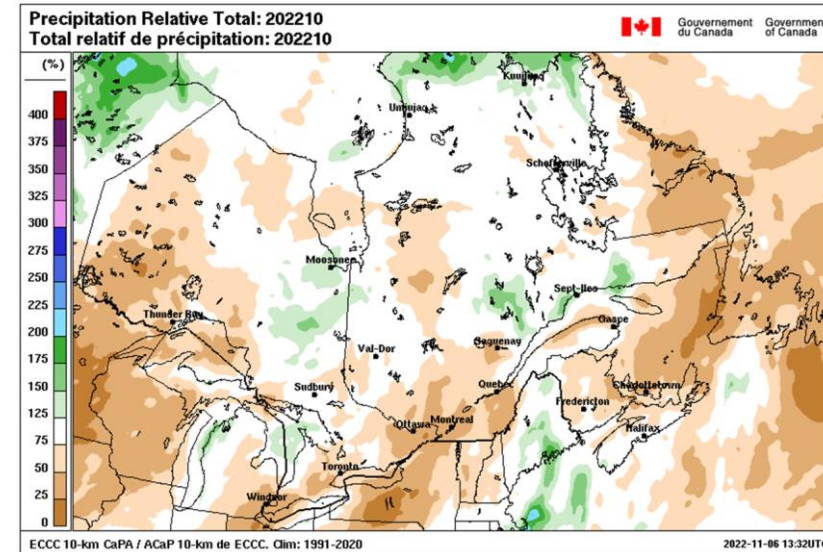
# VOLUNTEER FOLLOW-UP

- Some who had not reported indicated they planned to order equipment
- Many appreciated the nudge to get started or reporting again
- Some asked about more feedback (e.g. more regular Newsletters) or were not really aware of how the data is used
- In all cases info was provided as needed
- There was a significant number (~20% of those contacted) who subsequently resumed reporting without responding to the message 😊
- There was an 18% increase in the # of stations reporting between the 4-week period prior compared to the 4-week period following the messages (part of change due to natural increase winter-spring)
- A somewhat time consuming but worthwhile exercise



# ECCC CoCoRaHS DATA USAGE

- Used as a supplement in the provision of precipitation information to:
  - clients and media
  - Included in official Storm Summary bulletins issued by SPCs
  - Included in ECCC official precipitation maps
- Some use to confirm/QC other ECCC station data when needed (eg. monthly summaries)
- Forecasters use data in near real time to help validate and improve the performance of forecasts/warnings



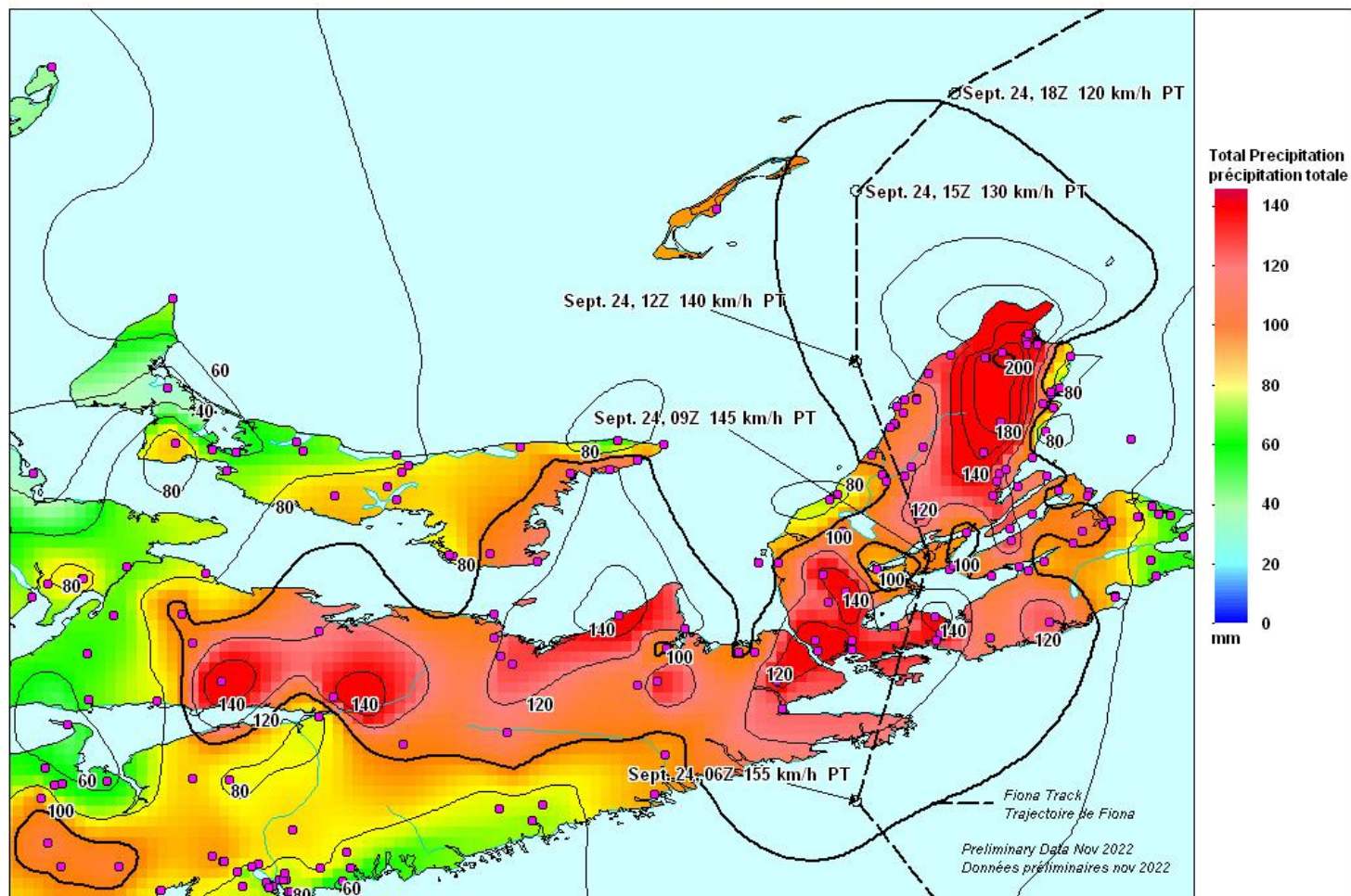
# TOTAL RAINFALL TS FIONA SEPT 22-25 2022 (INCLUDES 126 CoCoRaHS REPORTS)

Total Precipitation Sept 22-25, 2022  
Précipitation totale 22-25 sept 2022

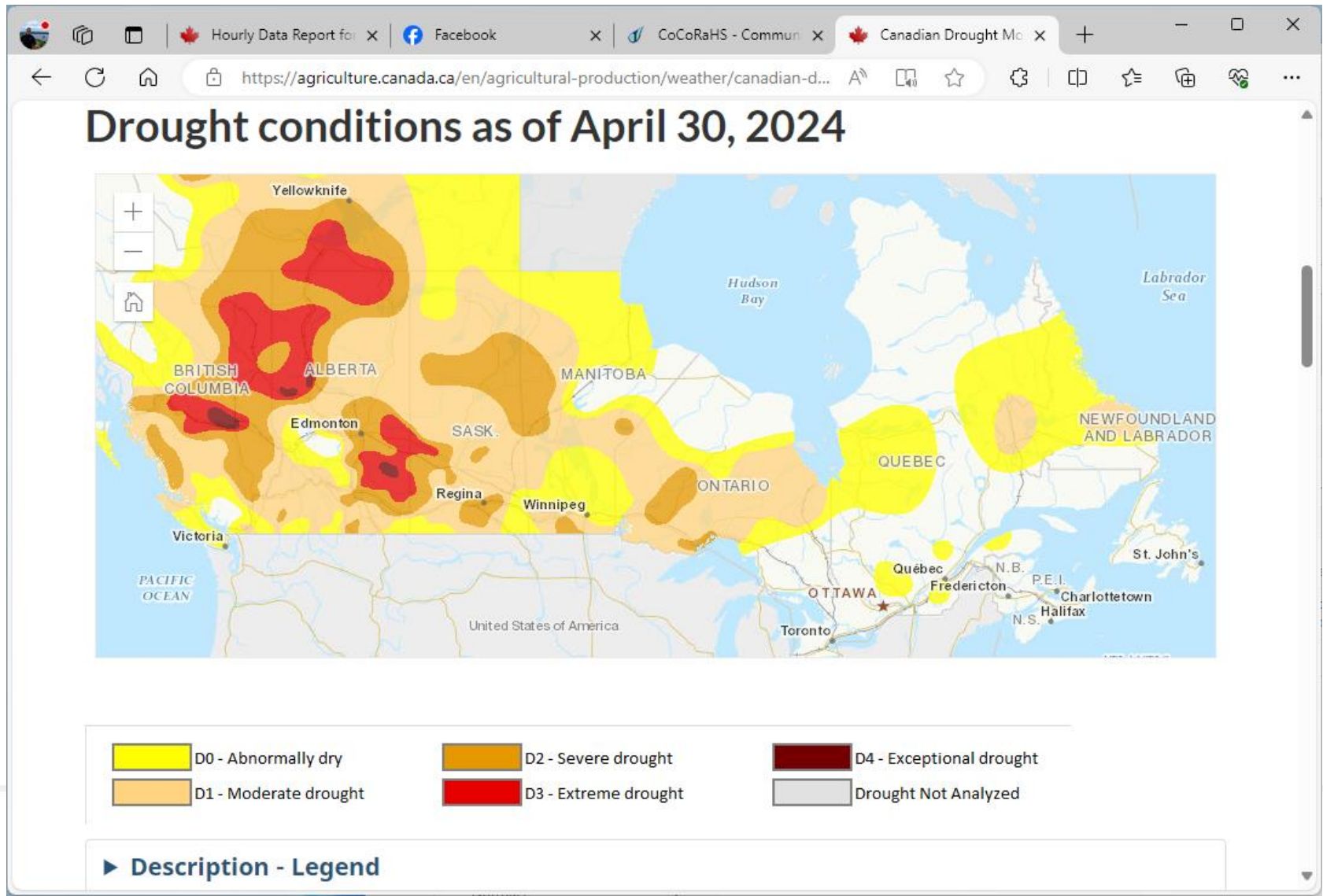


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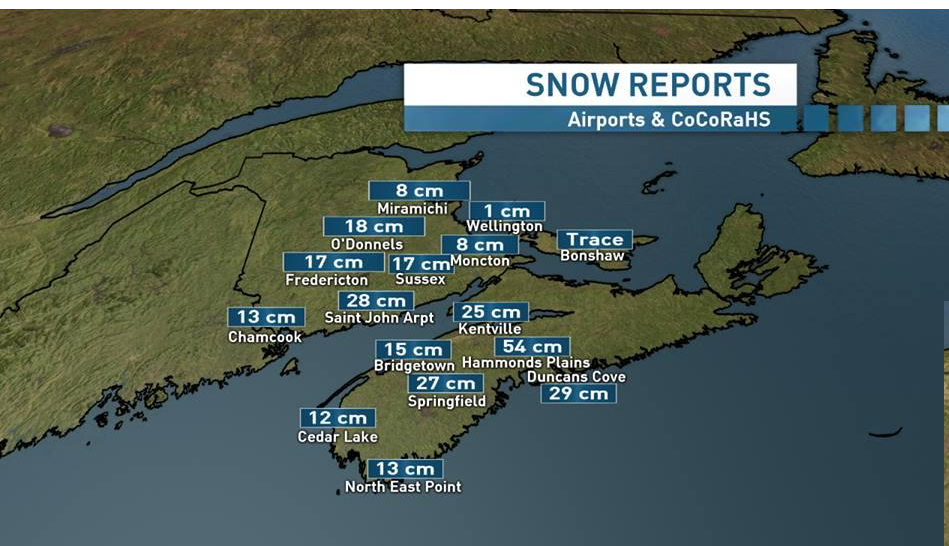


# AAFC USING CoCoRaHS IN DROUGHT MONITORING



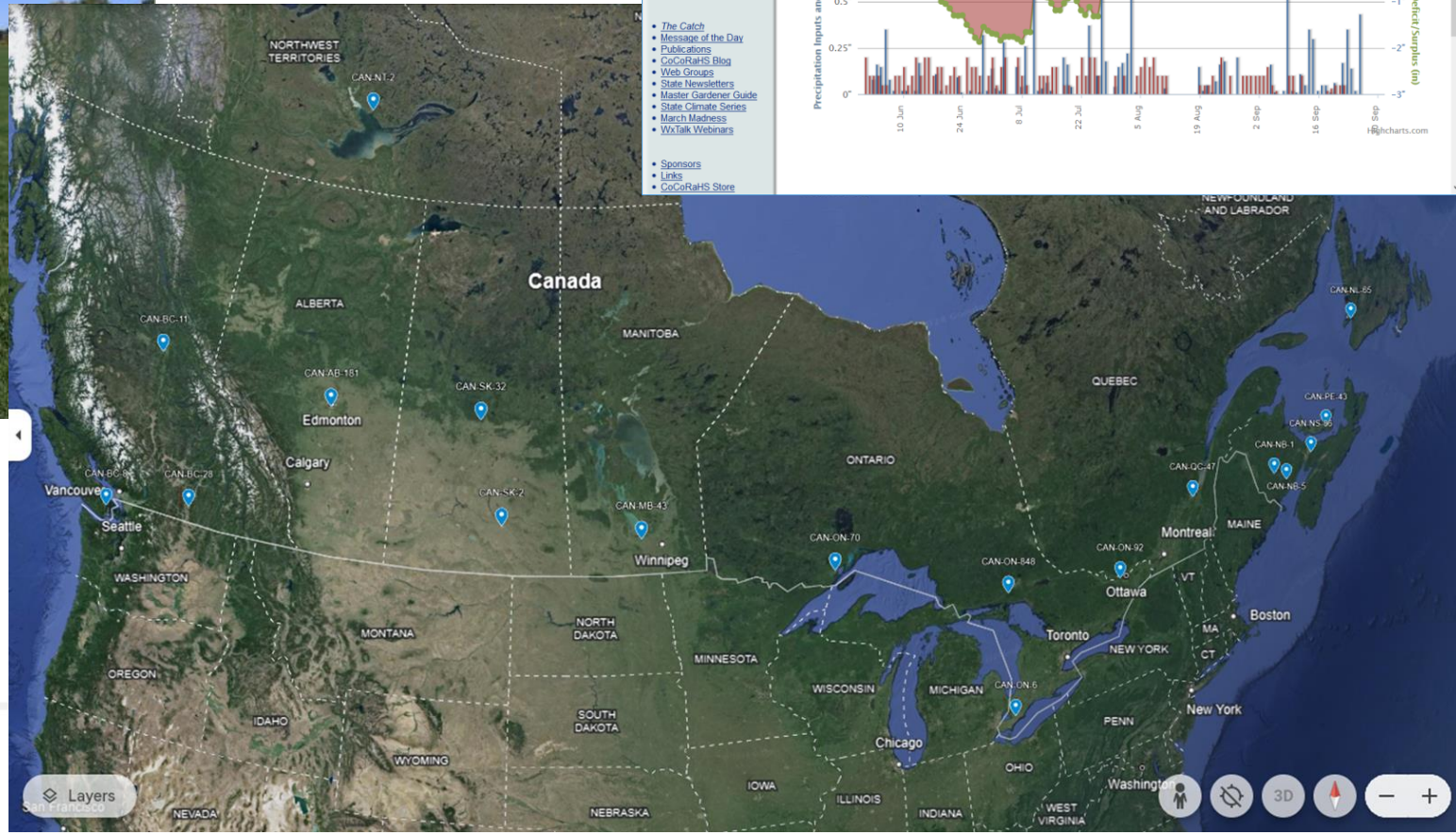
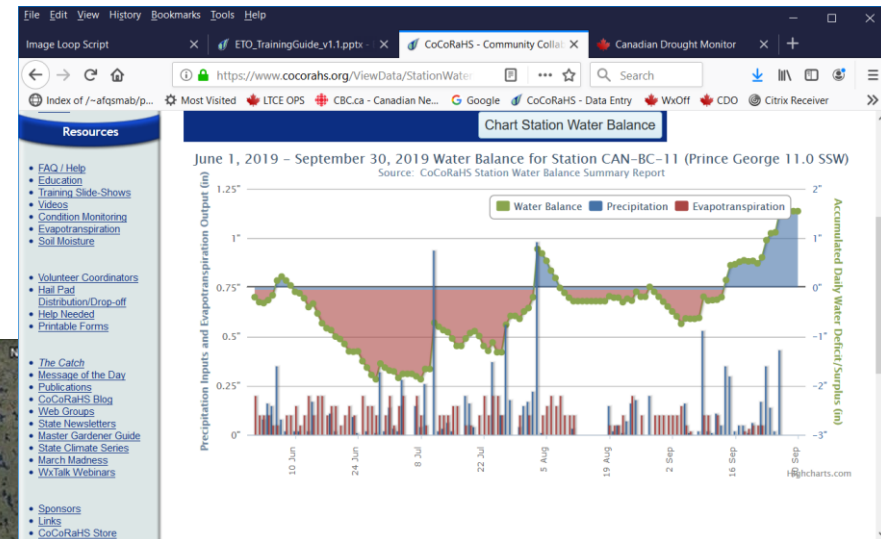
# CoCoRaHS IN THE MEDIA

- Some TV Meteorologist regularly using CoCoRaHS reports for the evening newscasts and Social Media posts



# CDN ET NETWORK 18 STATIONS

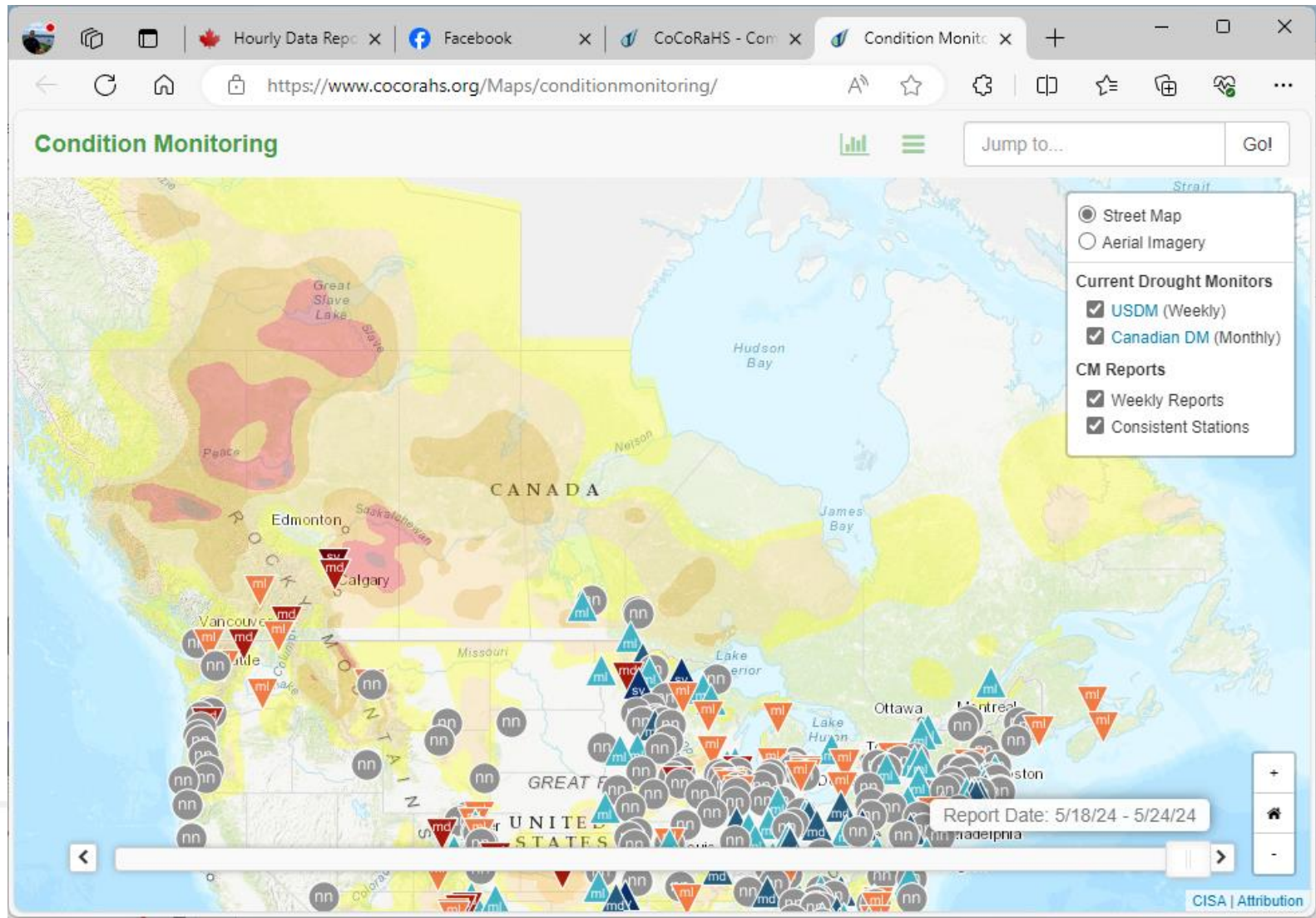
5 new stations  
established in  
2023



Gradually  
deploying  
more gauges  
as funds allow  
(gauges provided  
at no cost to  
selected  
volunteers)

# CANADA PROMOTING CONDITION MONITORING

## AAFC USING REPORTS TO ASSISTS WITH DROUGHT IMPACT MONITORING



# DATA QUALITY

- Data considered good and reliable compared to other ECCC data
    - Based on staff/user feedback
    - Spatial data checks
  - ECCC assisting with daily data QC
    - where required follow-up with volunteers to have suspicious data checked/corrected normally within a few days
  - Obvious errors are relatively infrequent with only a few per week requiring follow up
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# QUESTIONS?



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