WG2 Premises and Thoughts

- Go to the Data!
- Testbeds Group should define “data” needs and identify potential testbed sites.
- Modeling/Data Group should define model-data needs and propose potential experiments.
- Need Liaison(s) between groups
- What do the Users want, need?

Testbed Considerations

- Choose by Characteristics
  - Climatology: Tropical ⇔ SemiArid ⇔ Temperate
  - Terrain: Mountains/Snowpack ⇔ Flat/Precipitation
  - Hydrology Issues: Flash Flood ⇔ Large River Basin
  - User Perspective: Regulated ⇔ Unregulated
- Pick a Few (1 or 2 or 3 or…) or Many?
  - Regardless of Number…
    - Need to Be Thorough… Forward-Looking
  - Some Great Examples Presented
  - Beware Unrepresentative Sampling

LSM Requirements

- Time-Varying Initial Conditions

  Vegetation Characteristics

  Soil Characteristics

  Snow/Ice Cover

  – Desire more than ~30 Years for Above Data

- Topography

  Subgrid variability? Same mean…but…

Existing or Desired Hydro/LSM Data

Existing Data-Analyses-Models

-Streamflow!!!!!!!!!

Snow, soil moisture

-Forcing data

Hourly ⇒ Daily ⇒ Longer

1 km ⇒ Basin

NLDAS, CONUS 1996->

GLDAS, GLOBAL 2001?

LAI

-Water Management-Usage

-Anthropogenic Impairment

-Ensemble Fcsts (Later)

Desired Data-Analyses-Models

-Ensemble Forcing Analyses

-Suite of Hydro Models to Test

Full SFC Energy Balance

Simple Conceptual Runoff

Straight Statistical

-Water Management-Usage

ATMO Forecast Data (THEPS Presentation)

Hydrologic data requirements

Primary

- precipitation
- air temperature

Secondary

- incoming LW SW radiation
- humidity
- wind speed
- air pressure

Proposed TIGGE archive

(surface, at 6hr)

- ✓ Precipitation (frz + liq.)
- ✓ 2m air temperature, min, & max
- ✓ solar radiation
- ✓ thermal radiation
- ✓ 2m dew point
- ✓ 10m U- and V-velocity
- ✓ Pressure
- Latent and sensible heat flux
- Snowfall, snow depth, cloud cover, sunshine duration

ENDORSE

(in principle)

Recommendations

- Encourage Operational Centers/Centres

  -To allow free exchange of data for research purposes

  -To archive full resolution data for short periods/areas

- Resolution Considerations: General Thoughts

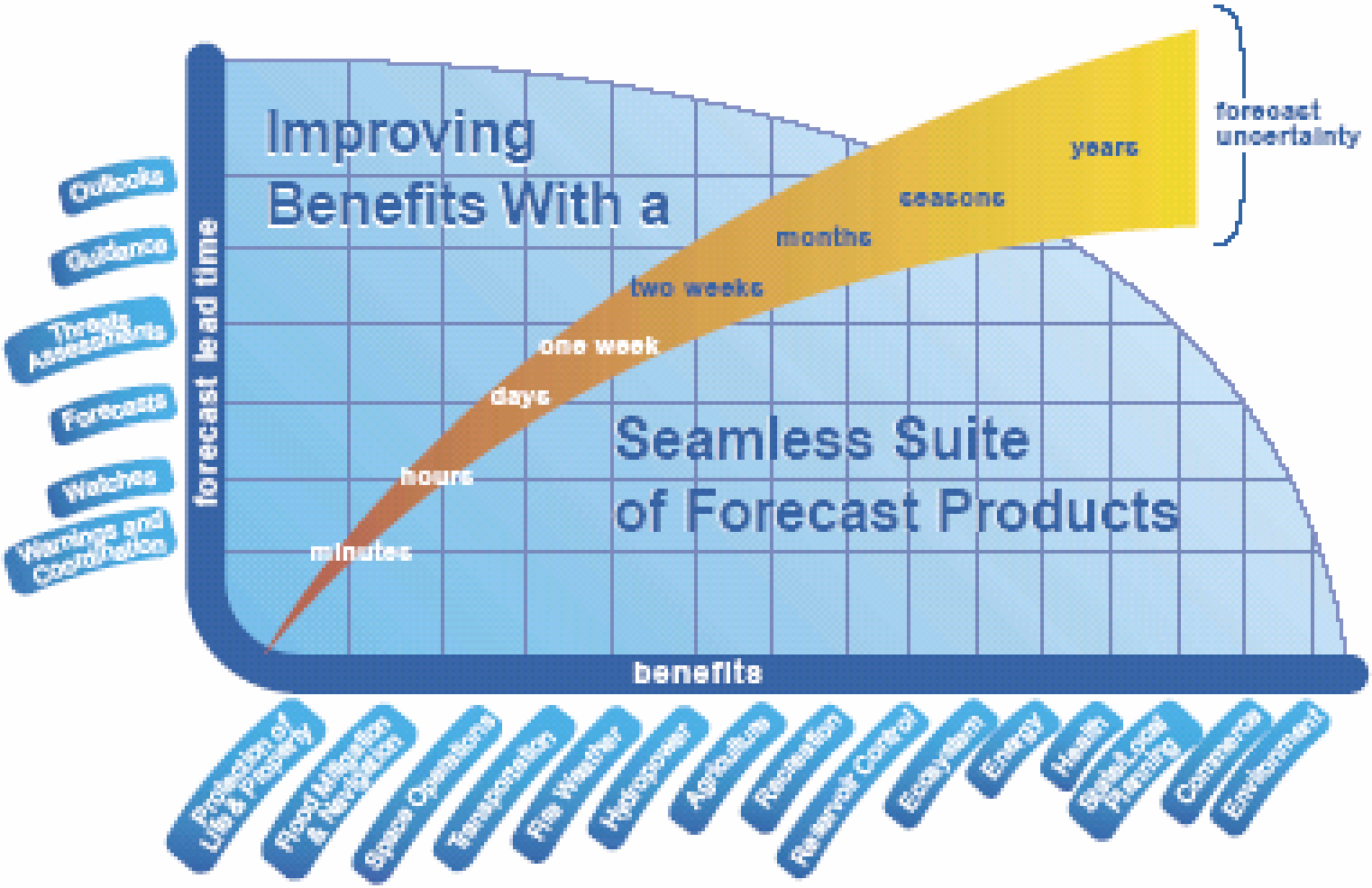
  -Temporal….6 hourly, but more frequently for certain fields (precip) early in forecast? (Consistent with current satellite verification-calibration efforts.)

  -Spatial…on model native grid?

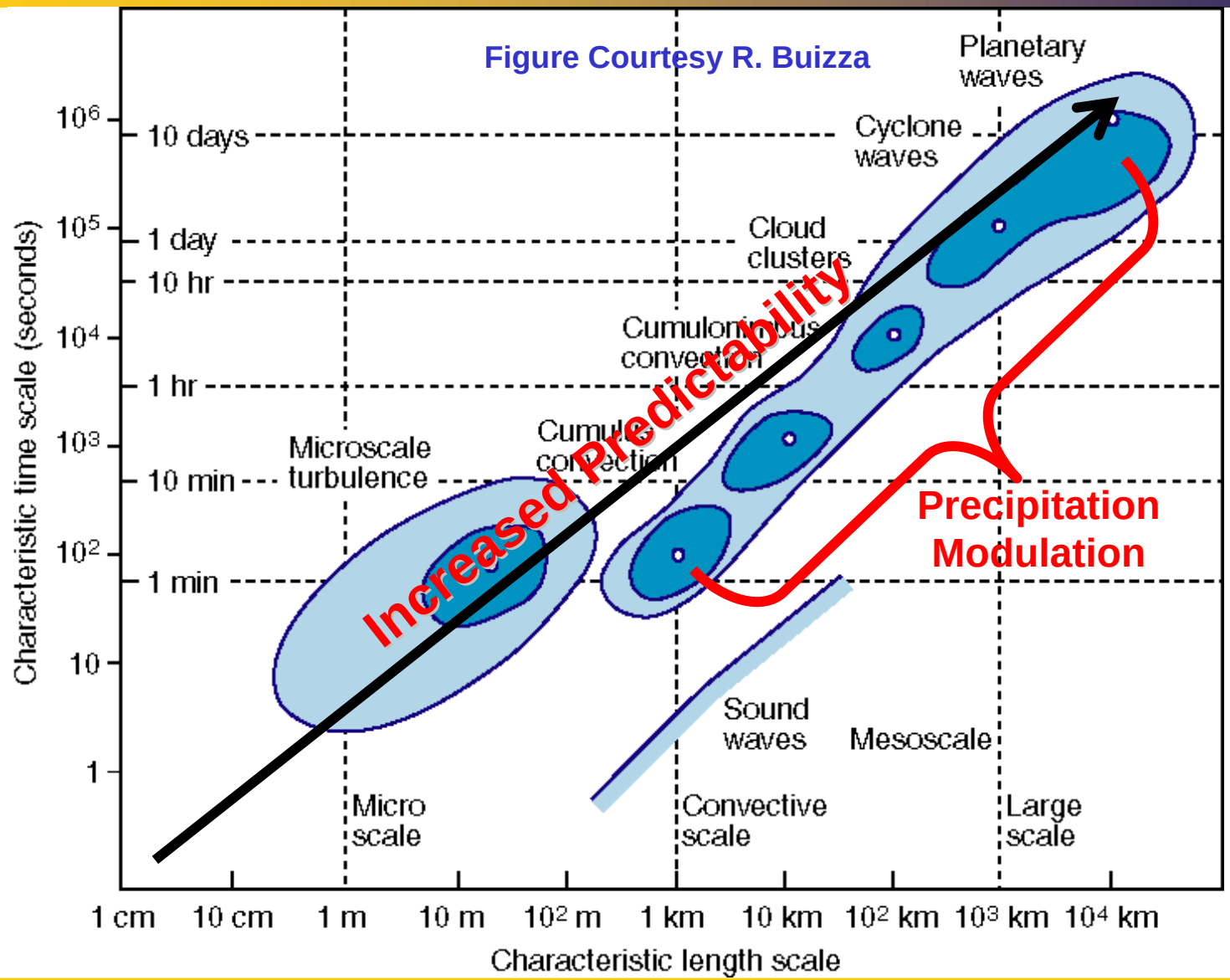
- Define What's in HEPEX for Centers/Centres

A Seamless Suite of Products

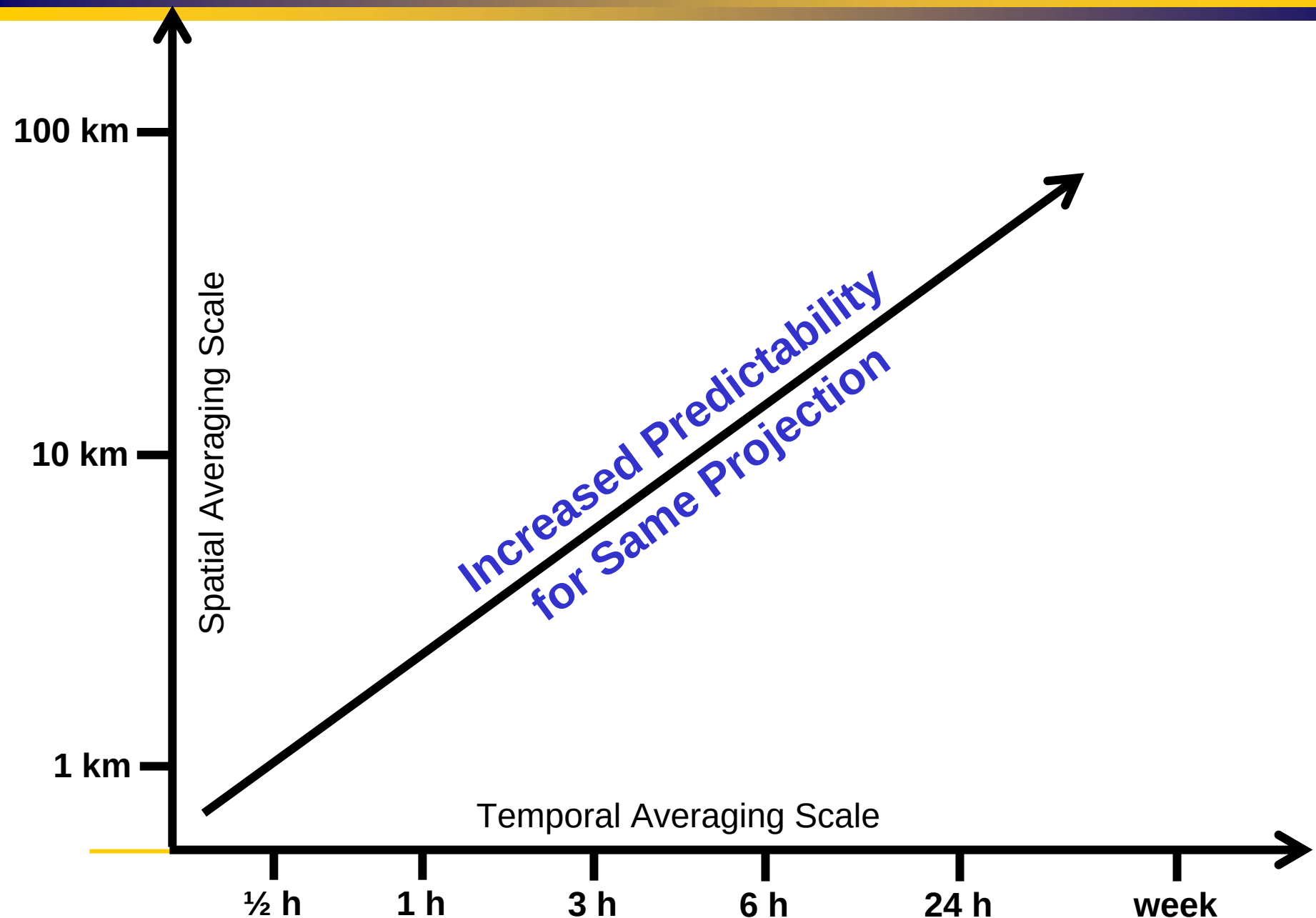
The "seamless suite" describes a set of related products which are integrated and consistent throughout time and space, as well as across forecast application and domain



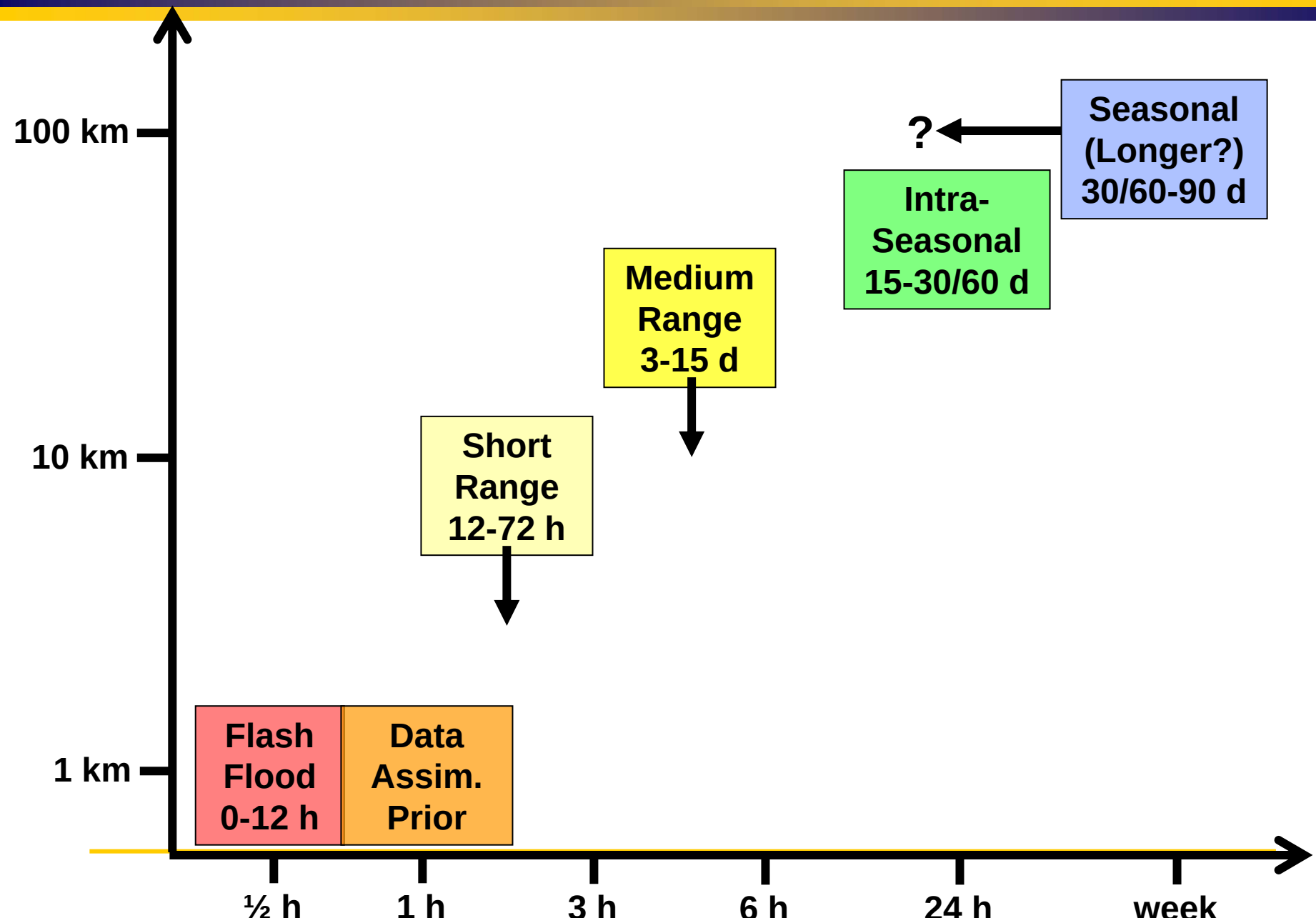
Atmospheric Time-Space Spectrum



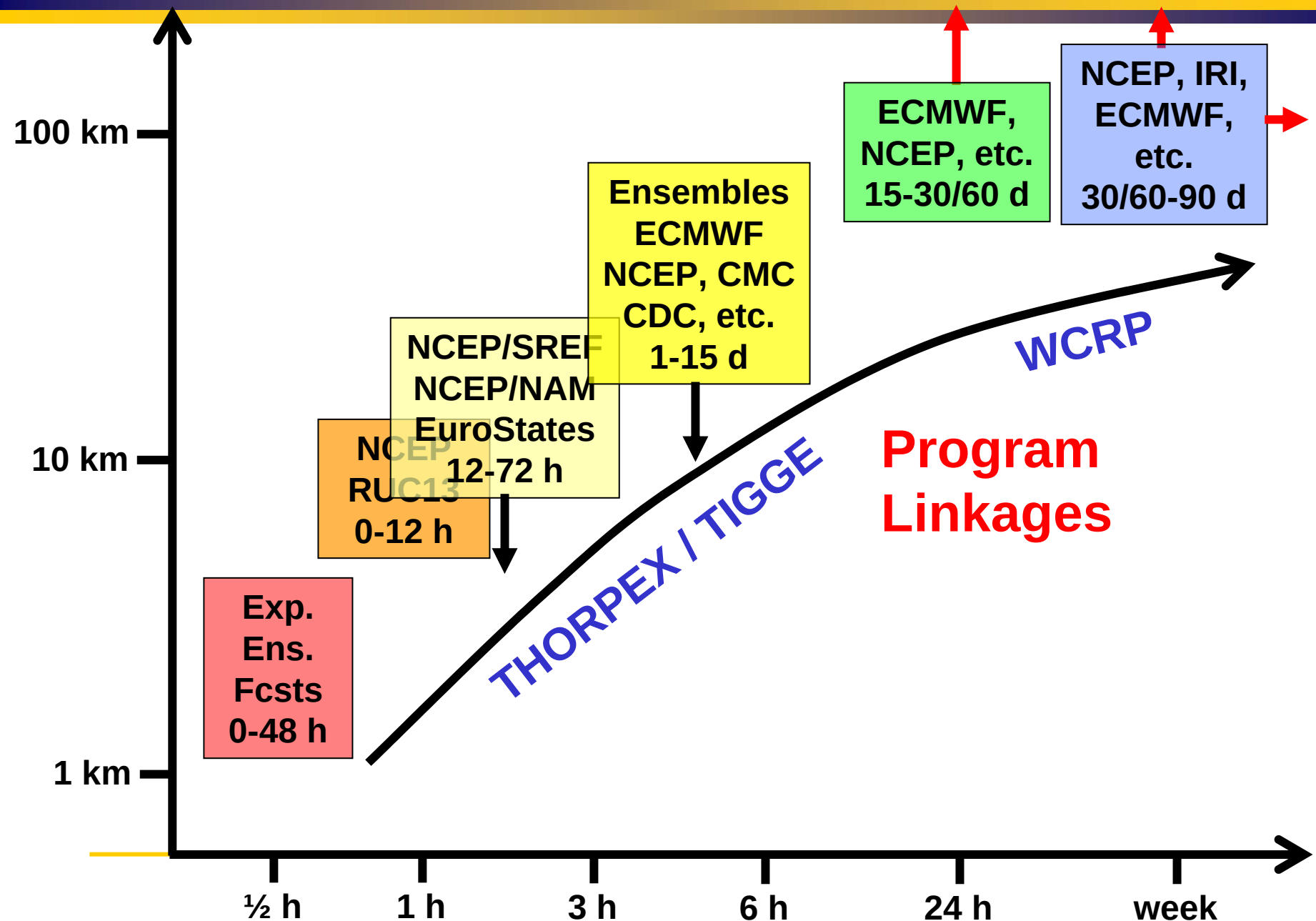
Organize Requests by Averaging Scale



A Shameless Suite of Products



Available Forecasts



Atmospheric Forecast Models

- Request a Continuous Stream of the Relevant HydroMet SFC Fields from Ensemble Systems
  - Seasonal (ECMWF, NCEP, IRI, etc.) for globe
  - 15 Day (ECMWF, NCEP, etc.) for globe
  - 3 Day (NCEP, EuroStates, etc.) for LAM's
  - Others? (RUC13, etc.) for LAM's

☞Volume for Just HydroMet SFC Fields is Small

- LBC's for Cloud-Permitting LAM's?

Data Management

- HEPEX Central Web Site…HEPEX Yellow Pages
- Data Sets
  - Archiving Sites (Who stores what?)
  - Documentation
  - Flexible Access (time-space subsets, time-series, etc.)
  - Free and Open Exchange
- Formats (GRIB2, ALMA, etc.)
- Software
  - Documentation
  - Platforms (Linux/Unix)
  - Coding Standards?
  - Free and Open Exchange
- Recommendation: Data Management Committee

WG2 Report and Summary

It’s 0350…

That’s all Folks!

Questions?

Discussion?

And you’ll get your bloody two-page soon… but later!

Space-Time Scales

- Stratify data by by FCST projection
  - Spin-Up/Assimilation? (ATMO, Land, Hydro)
    1-3 h, 1 km
  - Flash flood (0-12 h)
    ~30 minutes, ~1 km
  - Short-range (12 h to 3 days)
    ~1 to 3 h, ~10 km
  - Medium-range (3 to 15 days)
    ~3-6 h, ~50 km (finer?)
  - Intraseasonal (15 to 30-60 days)
    Daily, 0.5° x 0.5 °
  - Seasonal (30-60 days to 9 months)
    ~Weekly(?) to monthly avg, ~1° x 1°