

LEVERAGING THE GOES-R PROVING GROUND PROCESS AND FORECASTER FEEDBACK TO IMPROVE GOES-R PRODUCTS AND TRAINING MATERIAL

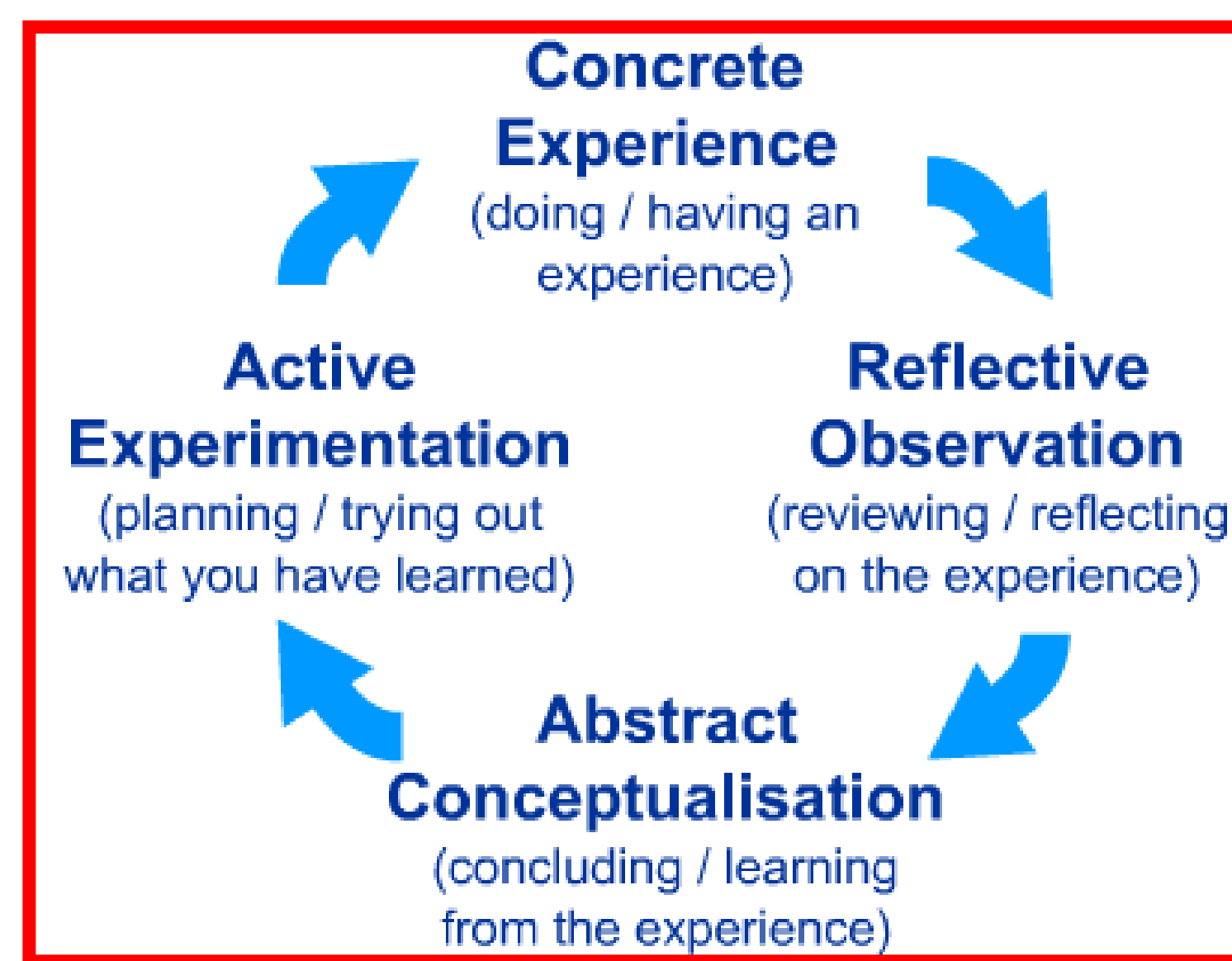
Scott S. Lindstrom¹, A. Scott Bachmeier¹, Wayne F. Feltz¹, Justin M. Sieglaff¹, Michael Pavolonis², Corey Calvert¹, Lee Cronce¹

¹University of Wisconsin-Madison Space Science and Engineering Center / Cooperative Institute for Meteorological Satellite Studies (SSEC/CIMSS)

²NOAA/NESDIS, Madison, Wisconsin

Two examples of cyclic/circular training paradigms

Kolb Cycle



HydroMet Testbed (HMT) Training Concept: Training is part of a cycle

University of Wisconsin Convective Initiation (UWCI)

Developed by
Justin Sieglaff, Lee Cronce, Wayne Feltz
CIMSS UW-MADISON, MADISON, WI
Kris Bedka
SSAI, HAMPTON VA
Mike Pavolonis and Andy Heidinger
NOAA/STAR/ASPB MADISON, WI

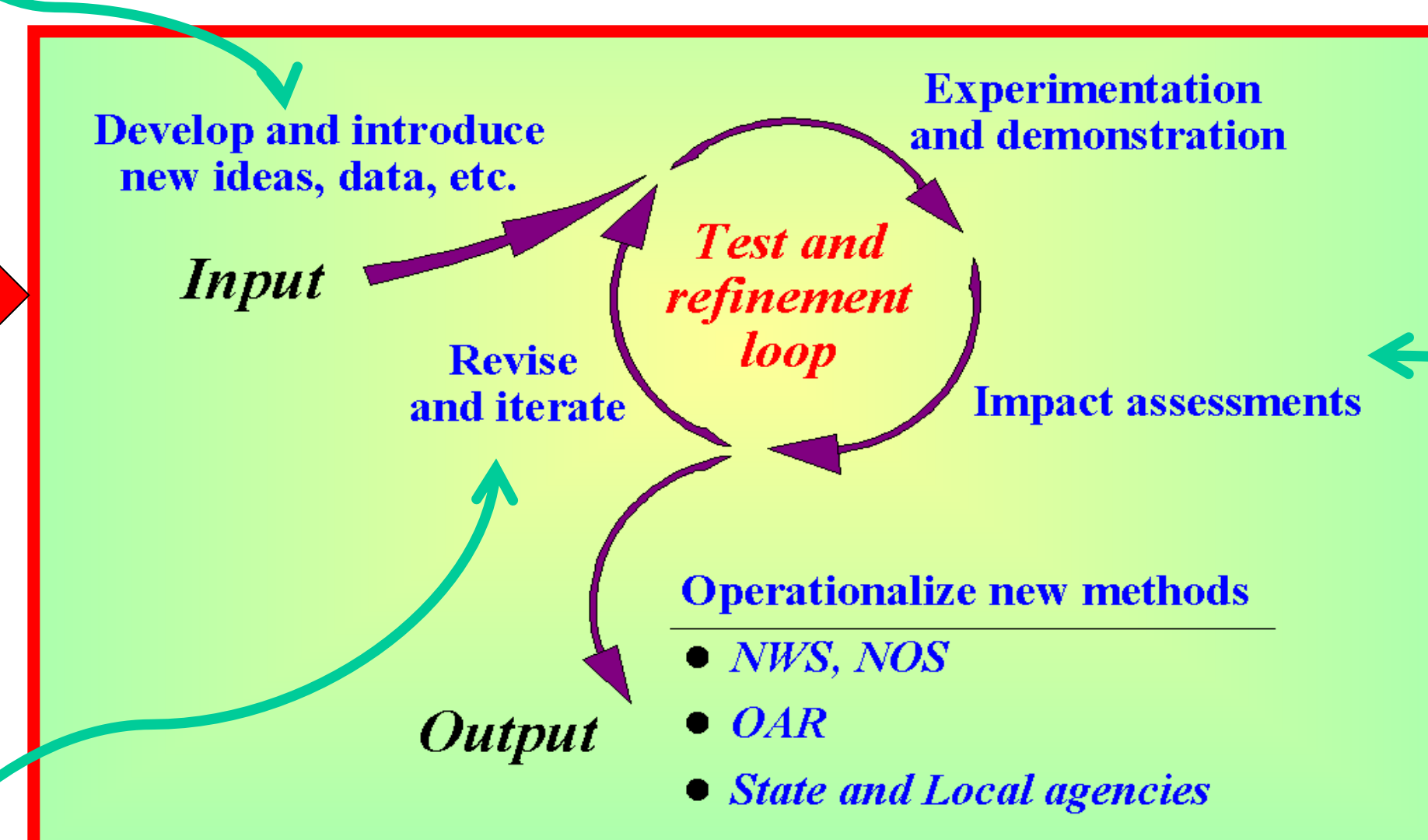
Title Slide of VISITView Training, Version 1

FOCUS OF TRAINING v. 1

- CI tells you where convection is growing
- Limitations due to cirrus clouds
Cirrus obscured potential convective development areas...a known issue.
- Examples of CI followed by convection (non-quantified)
Forecasters not interested in seeing a binary yes/no output.

Contact Information

scott.lindstrom@ssec.wisc.edu
scott.bachmeier@ssec.wisc.edu
wayne.feltz@ssec.wisc.edu
justin.sieglaff@ssec.wisc.edu
corey.calvert@ssec.wisc.edu
lee.cronce@ssec.wisc.edu
mpav@ssec.wisc.edu



FEEDBACK

National Weather Service (NWS) forecaster reviews of the algorithm output hypothesized that more intense cloud-top cooling corresponds to more vigorous short-term (0-60 min) convective development. Forecasters continuously identified ‘the cirrus problem’ as the largest deficiency of the original algorithm at various testbed locations

Evolution

Algorithm changed and training changed **based on forecaster evaluations** of the first training.

Version 1: Here’s where convection may form

Version 2: Here’s some information that is pertinent to how the growing radar cell will look in the near future.

- ### Research to Operations
1. Training/learning paradigms are circular.
 2. Development of new Forecast Tools is frequently linear – Scientists develop product, the new product is placed in the AWIPS environment for the Forecaster. Is this Optimal?
 3. Scientists developing forecast tools are not experienced Operational Line Forecasters and may not understand requirements and present techniques.
 4. Interactions between Scientists and Forecasters generally are not funded
 5. New Forecast Tools thus frequently do not include ideas and insight from Forecasters; by the time the forecasters see it, the Scientist/developer is funded to do something else
 6. This example details how a product evolved into something forecasters need based on forecaster observations and suggestions. A circular path to a useful product.

University of Wisconsin Convective Initiation (UWCI) and Cloud-Top Cooling (UW-CTC)

Developed by
Justin Sieglaff, Lee Cronce, Wayne Feltz
CIMSS UW-MADISON, MADISON, WI
Kris Bedka
SSAI, HAMPTON VA
Mike Pavolonis and Andy Heidinger
NOAA/STAR/ASPT MADISON, WI

Title Slide of VISITView Training, Version 2

Characteristics of UWCI/UW-CTC

- Uses multispectral GOES Imager data
- Results available ~2 minutes after satellite scan (distribution to AWIPS takes an additional 5-10 minutes)
- Operates in regular and RSO mode
- Used with GOES-East and GOES-West
- **CTC related to subsequent radar signatures**
- Flags convective cloud development
 - Everywhere if there is no cirrus
 - **During Day even if cirrus exists using changes in Optical Depth**
- Low FAR, good POD, error sources understood

Result: More useful products, happier forecasters

“If you looked at the day where there were the Dallas supercells, I found it really useful... I actually warned on the CTC and it worked out well... It preceded the 60 dBZ and 1" mesh by about 20-30 minutes.”

More examples at
<http://goesrhwt.blogspot.com/search/label/UWCI>

BOTTOM LINE of FIGURES ABOVE

- ❖ Initial Forecast Decision Tool is not the final version
- ❖ Forecaster feedback is vital
- ❖ Continued funding to hone product to something that is most useful