WORKSHOP PLAN – DAY 2… (Morning)

K.	**Approaches to Estimating Errors**	9:15 – 9:30
L.	Error Modelling in GCD	9:30 – 10:00
M.	Ground-Based LiDAR Flume Demo	10:00 – 10:30
		10:30 – 10:45 BREAK
N.	Statistical Methods for Error Modelling	10:45 – 11:15
O.	ToPCAT & GCD: Roughness	11:15 – 11:45
P.	Introduction to Fuzzy Error Modelling	11:45 – 12:30

Lunch 12:30 – 1:30

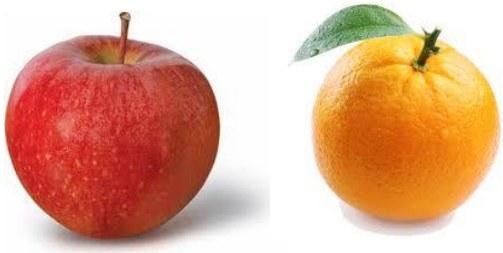
WORKSHOP PLAN – DAY 2… (AFTERNOON)

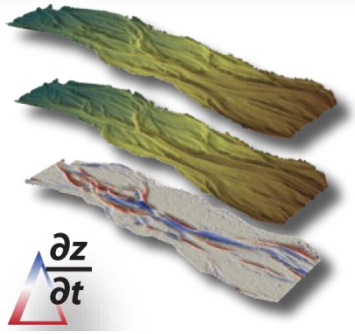
Q.	Building your own FIS Error Models	1:30 – 2:30
R.	Self Paced - Inputs	2:30 -3:00
S.	Self Paced – Change Detection	3:00 – 3:30
		3:30 to 3:45 BREAK
T.	Interpreting Outputs	3:45 to 4:15
U.	Spatial Coherence & Bayesian	4:15 to 4:45
V.	Recap / SLOP	4:45 to 6:00

GEOMORPHIC CHANGE DETECTION

K. SPATIALLY VARIABLE & THE HYBRID-SURVEY DILEMMA

Kansas Water Office





NORTH ARROW RESEARCH

UtahStateUniversity
ECOGEOMORPHOLOGY & TOPOGRAPHIC ANALYSIS LABORATORY

WET-DRY AREAS….

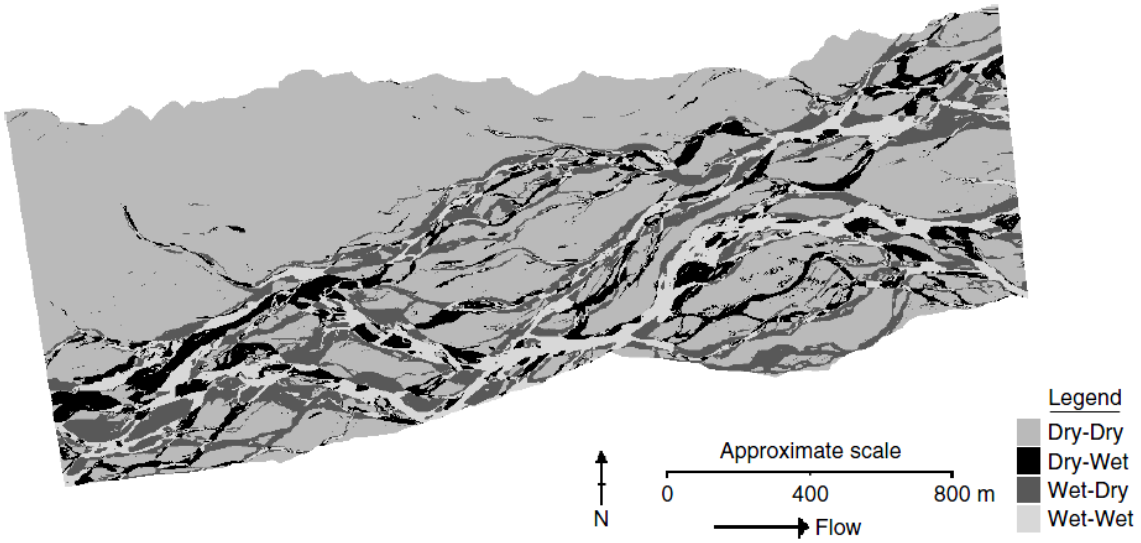


Figure 4. Classified patterns of change for the annual DEM of difference used to apply the level of detection information in Table V

- Wet areas have one error value, dry have another.
- With propagation, four possible combinations
- Derived from check points

Table III. Measures of surface precision estimated from a theoretical basis, from photocontrol point data (PCP-based), from independently acquired check data, and from overlap analysis

DEM	Theoretical precision (m)	PCP-based precision (m)	Check data precision (m)		Overlap analysis precision (m)
			Dry-bed	Wet-bed	
Photogrammetry: February 1999	±0·070	±0·052	±0·261	±0·318	±0·192
Photogrammetry: March 1999	±0·070	±0·051	±0·257	±0·256	±0·174
Photogrammetry: February 2000	±0·056	±0·049	±0·131	±0·219	±0·177
Laser altimetry: May 2000	n/a	n/a	±0·100	±0·250	±0·218

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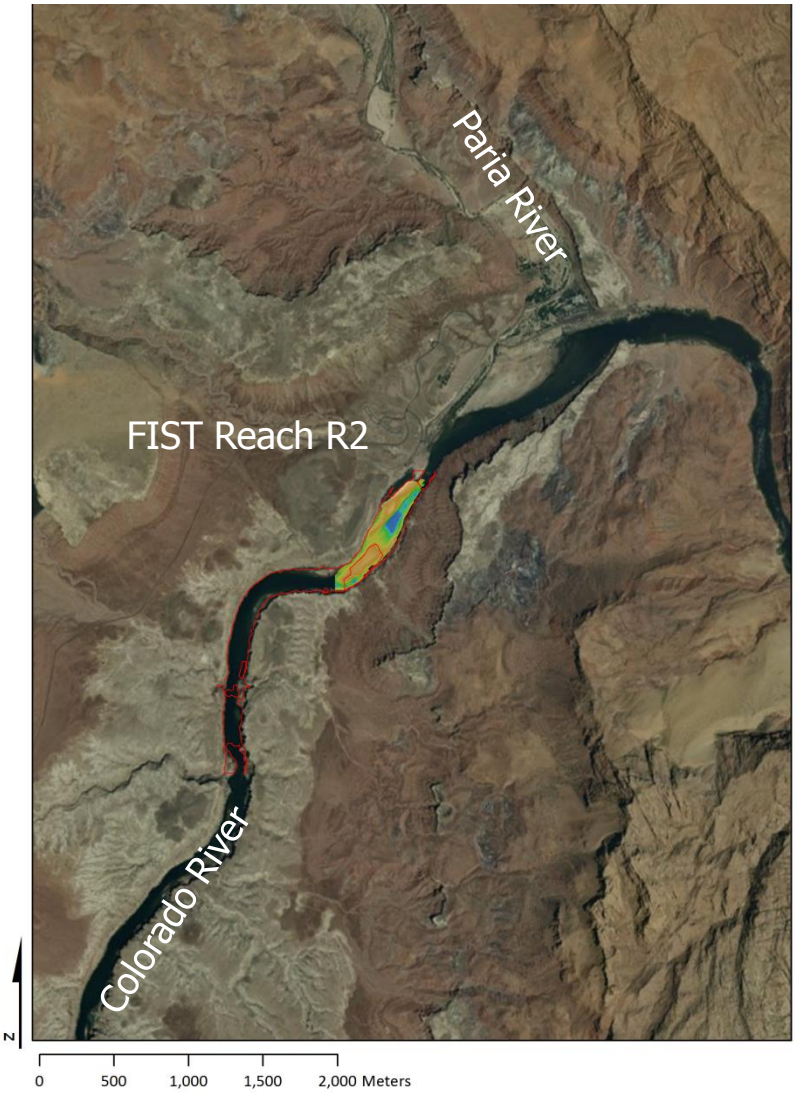
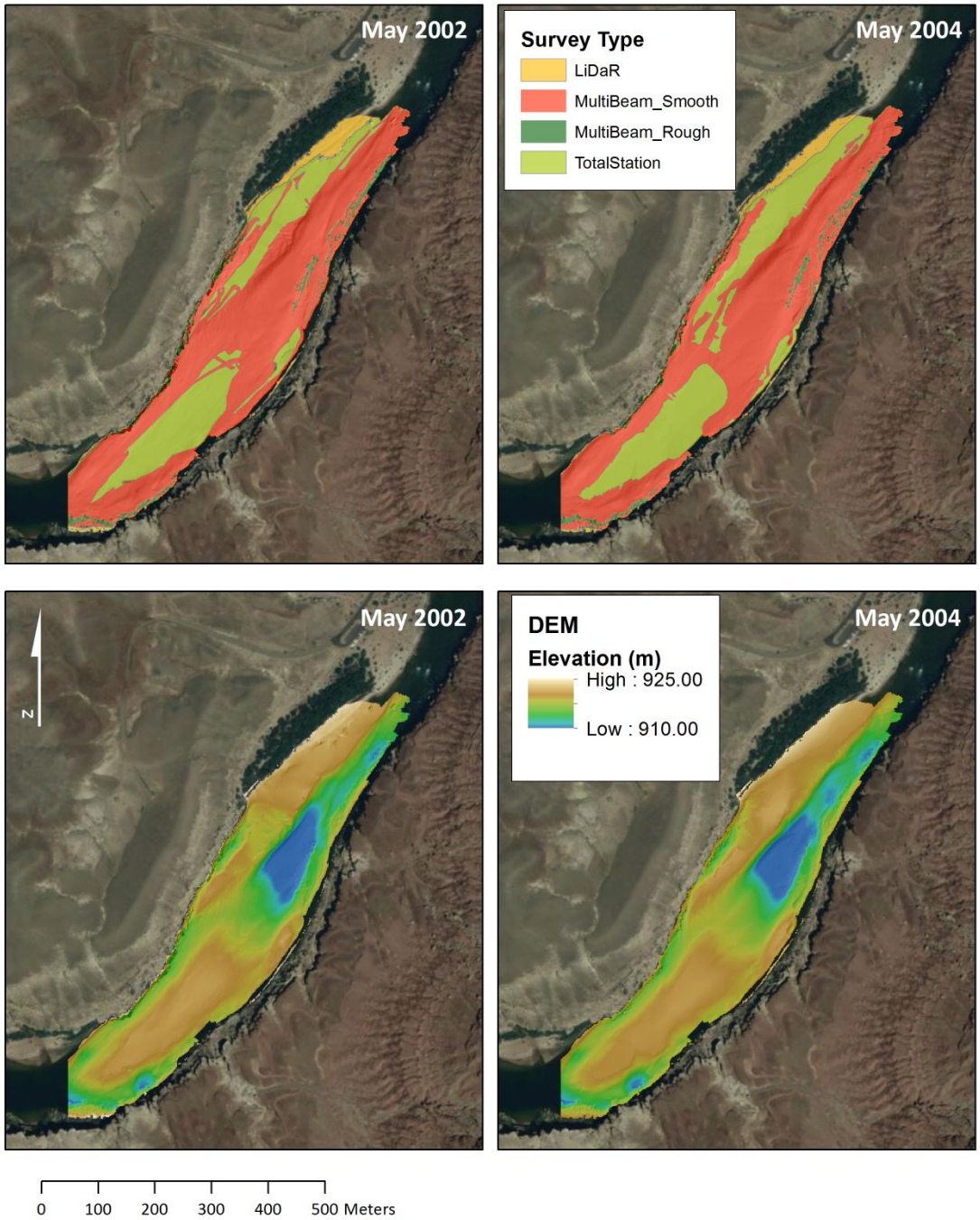
From Lane et al. (2003)

WHAT'S THE DIFFERENCE?

- Paria Reach
  - FIST Reach R2
  - Six Surveys over four years (2000 to 2004); five epochs:
    - 2000 August
    - 2000 September
    - **2002 May**
    - **2004 May**
    - 2004 November
    - 2004 December
  - Used 121,843 of 311,371 points for 2002 & 86,142 of 251,739 points for 2004



SUBSET OF DATA

- Hybrid Data Types
  - LiDaR (σ =15 cm)
  - Multibeam Smooth (σ = 3 cm)
  - Multibeam Rough (σ = 12 cm)
  - Total Station (σ = 6 cm)
- What to do?