Date 4 Mar 2020

"Value Driving Story →

"PO's ~~project~~ backlog

Order of backlog /refinement

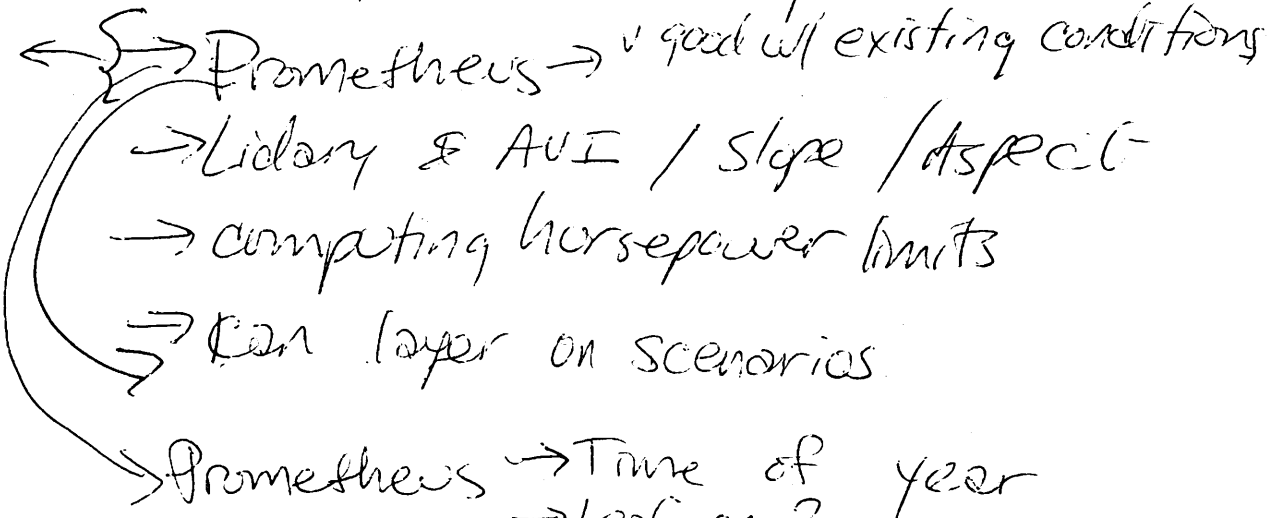
→ can include bugs

Ken 44-042 · Wildfire

→ fire control

→ pre-suppression

→ wildfire behavior specialist



* Send note to Derek

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08:50 -

Gary Mandrusiak

403 844-1034

~~Expert~~
- About me / project
- Experience in modeling fire growth
  - Pain points
  - Accuracy of prediction
  - End use → fire fighting
    → risk to.

- Operational Modeling for Fire:
  - ↳ fire planning
    - → only model CW → Prometheus
      - → 2001-2002 steering committee
    - → reconstructions after the fact
    - → planning → community protection plans
      - → risks / scenarios.
      - → for Firebag + Suncor fire planning
      - → using historical → risks for future.
    - → comparison after the fact.
      - → calibrate afterwards
      - → reconstruction → works better
      - → operational model → not as well
      - → planning → Fire weather indices 95% ile.

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- prediction vs actual
  - 100% unmitigated
    - → wind spd + direction very ~~acceptable~~ sensitive
    - → higher level winds in future.

- AFS. => AAF => name.
  - ↳ wildfire behavioural specialist.

→

403 685 4520 x222

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→ operational → limited to accuracy of weather forecast
→ need more detailed → improves results
→ took 'best' of available 6 forecasts for

→ McMurray Fire ⇒ ~50% time model accurate w/in ~1-2 km for spread.

→ Wildland Fuel Types → v. important

→ Fire Behavior model.
- Can. FF danger rating system
- Other than weather
- Heavily weighted on fuel types
- heavily dependent on vegetation inventory ⇒ not always accurate
  - ↳ V large influence on model accuracy
  - → what is the real condition.

1 of the 5 scor planning exercises → :
- Fire weather index
&
⇒ Fire danger rating / FWI 3graphics

⇒

- Research 17 fuel types → weather
  - ↳ fire growth uses equations to predict based on → inputs. 100m x 100m grid
  - → what is fuel type, weather conditions, topography → predict speed + direction;

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- propagation
  - → stepping out
- Accuracy of 'fuel grid'
- other Challenges:

Ignition Point:
- → start fire from 'somewhere'
  - → accurate start coordinates (even 1 km off could be different fuel type)
- → coordinates from aircraft → V0 can be inaccurate.

Fire Perimeter:
- → once fire growing; growing from fire perimeter.
- → existing fire perimeter is not necessarily accurate.
- → timely perimeter is really challenging resorted to (McMurray: satellite hotspot data
  - → satellite → op'l error in converting time from UTC
  - → timing of satellite pass.
  - → fire doesn't change as much at night.

U of A → developing satellite work to observe w more accuracy

Modis → 500m x 500m not that accurate

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McMillan fire → 30 km run in middle of night
→ weather + fire models did not call for this
→ none of the models predicted that

why? → another dimension
→ possibly higher level winds
(beer getting upper air soundings to get upper level ~~spot~~ spot)

⇒ people starting to research that
→ pyrocumulus → affects weather

Growth Model → doesn't account for spot fires
(embers blown/jump)
→ trying to account for in model with adding new ignition points based on on-the-ground observations

→ Fire Behavior calculator attempted to predict spotting distance.

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