

Korea to Vancouver, Wa. by ship
discharge directly to river barge
transit time about 15 days.

Traditional routes from the Far East to Ft. McMurray

- **Houston, Tx.**
 - Ocean voyage 9,979 nm – 32 days at 14 kn.
 - Road distance 2,538 mi. (w/o considering designated routes and deviations).
 - Saving by using Columbia/Snake Option 5,300 nm and 1,537 mi.
- **Duluth, Mn.**
 - Ocean voyage 13,494 nm – 43 days at 14 kn.
 - Road distance 1,435 mi (w/o considering designated route and deviations).
 - Saving by using Columbia/Snake Option 8,831 nm and 431 mi.

Columbia/Snake Option for offshore cargoes/modules

- Shore cranes available to handle the largest loads.
- Direct ship to barge transfer possible, depending on ship's gear or beam.
- Fleet of flat deck barges available for Ocean to River transfer. Max. barge size 400 x 84 ft.
- Experienced tug operators available to navigate river route (all year).
- US Corps of Engineers maintain min. 14ft draft available year-round.
- Private and public docks available with storage in Wilma and Lewiston.
- Ample private storage areas available adjacent to docks for staging and value adding if needed.
- Approx. 2.5 days transfer from Vancouver, Wa. to Wilma/Lewiston.



Vancouver, Wa. to Wilma/Lewiston
by river barge.
transit time abt 2.5 days
open all year-round

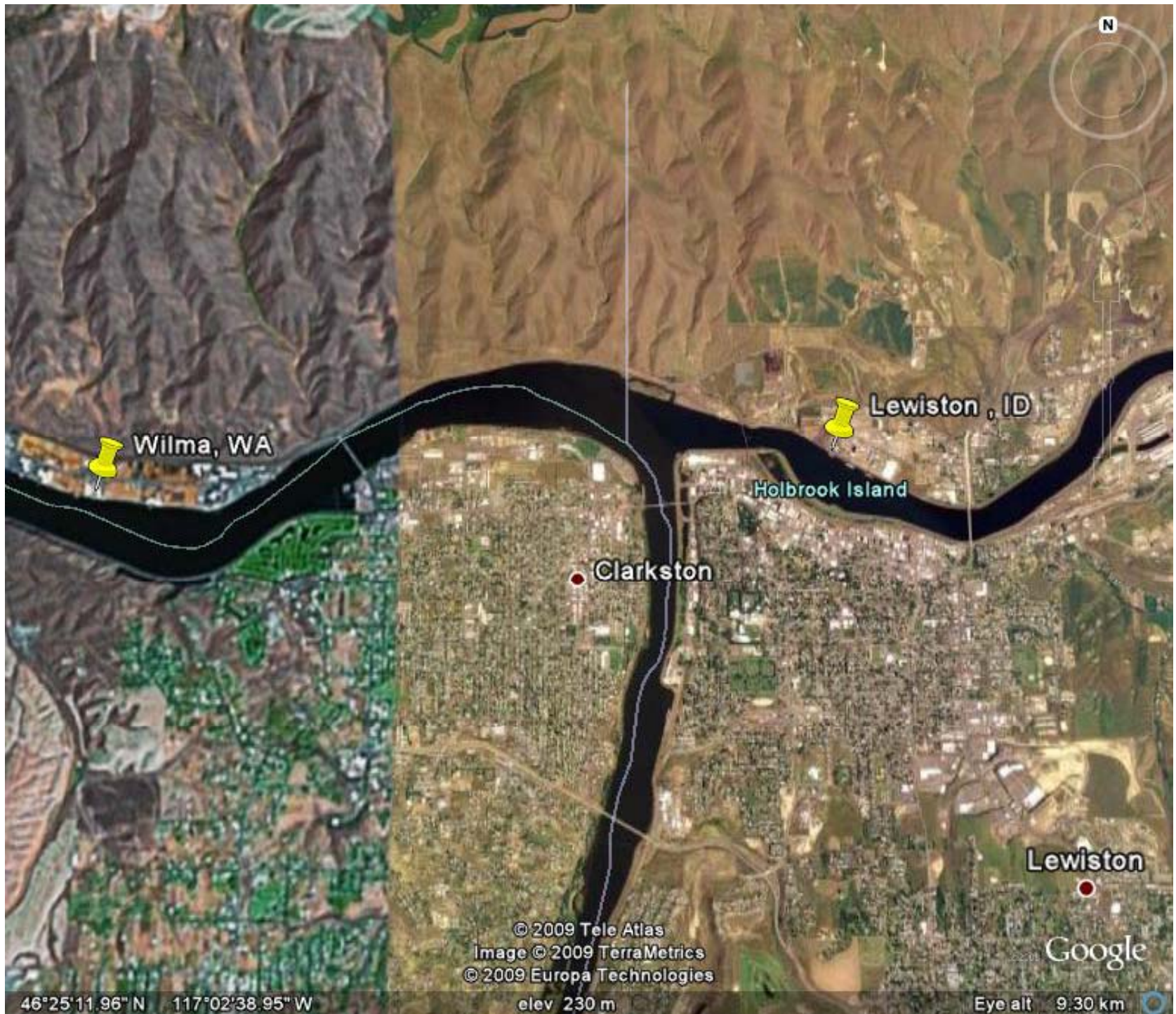
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45°35'55.79" N 120°03'56.69" W

elev. 681 m

Eye alt 804.81 km

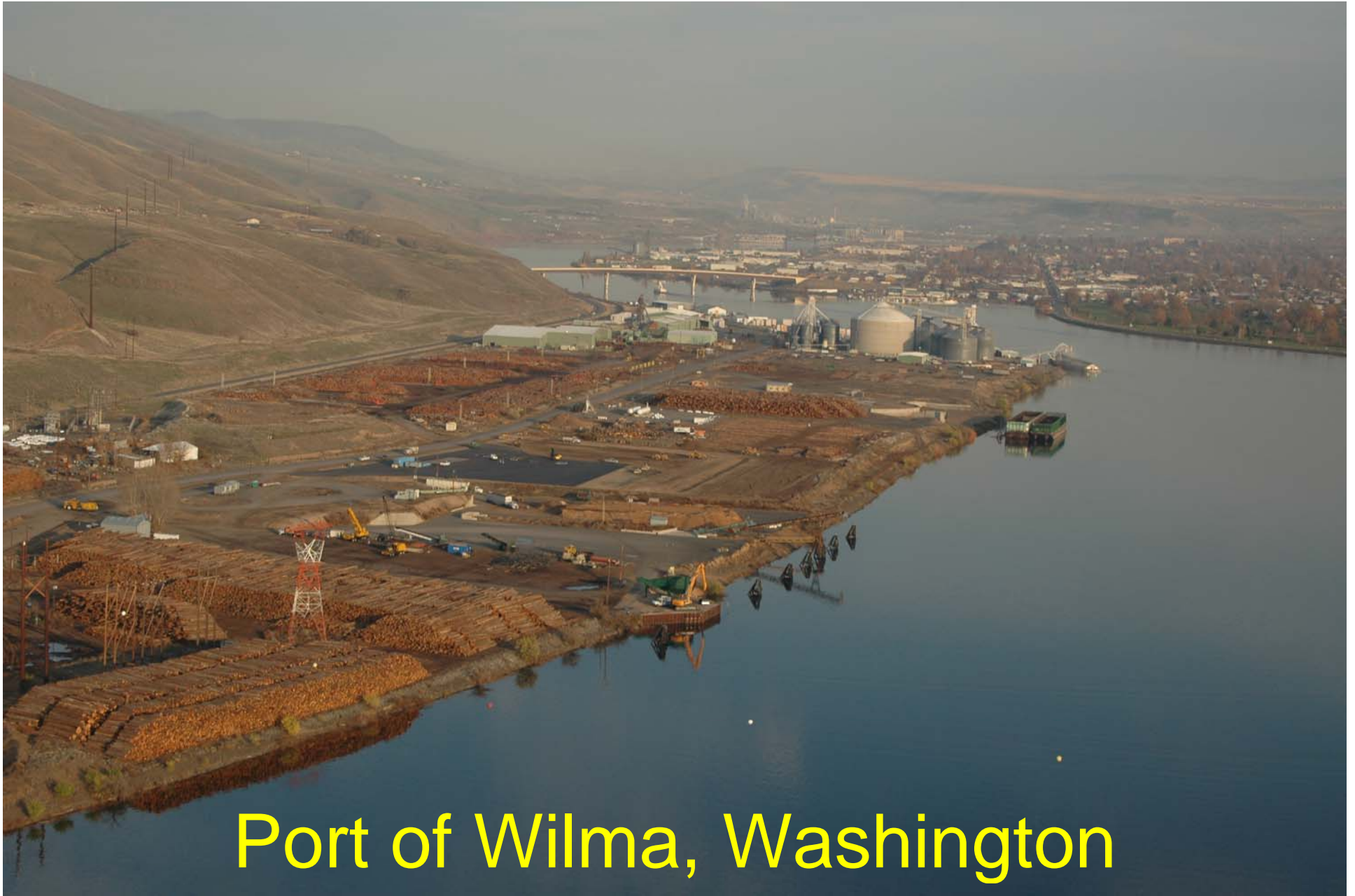


46°25'11.96" N 117°02'38.95" W

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elev 230 m

Eye alt 9.30 km



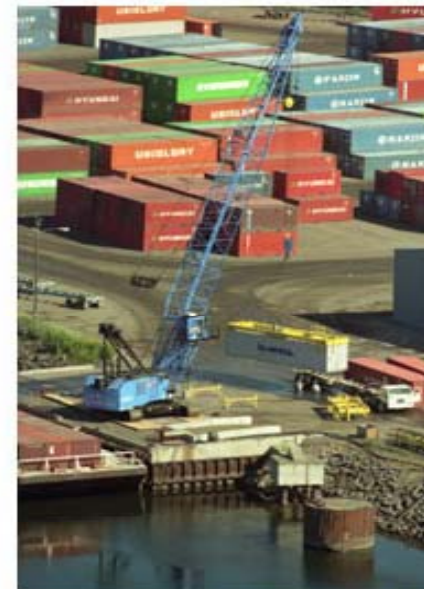
Port of Wilma, Washington
(Clarkston and Lewiston in background)



Wilma, Wa. TGM Terminal & Dock

Pilings show future dock expansion area. Right hand side shows terminal area under construction (Nov/08), now completed.

Port of Lewiston, ID



The practical test stage 1

Can. Flag coastal barge Vancouver to Bellingham.

Load on rising tide – Wheels blocked and temporary lashing only.



The practical test stage 2:

- Unload vessel in Bellingham, WA. on tide at ramp.
- Reload vessel in Bellingham on US flag barge.
- Lash vessel for ocean passage to Columbia River.
- Switch ocean-going tug to river push tug Vancouver, Wa.
- Sail 360 miles inland from Vancouver, Wa. on Columbia/Snake Rivers
- Discharge vessel by ro-ro in Lewiston, ID
- Re-enter Canada with Canadian conveyance.





Barge arrival in Lewiston, ID



Complete Discharge

Savings compared to Houston, Tx:

- * Ocean-River Voyage: 5,300 nautical miles shorter
- * Trucking: 1,537 miles shorter
- * No port stevedoring, no Panama canal fees
- Much shorter weather exposure
- Smaller carbon foot print
- Complied with Can. flag requirements
- * Carrier: **Dargas Shipping Ltd.**

Dragline

Alberta – Australia via Wilma
14,000 Rev tons – 5,500 ST
Project; Oct-08 to Aug-09



Canadian flag service
Great Lakes/St. Lawrence
via Columbia/Snake

to ALBERTA



Wilma, Wa to Sweetgrass, Mt

Wilma, WA

ID

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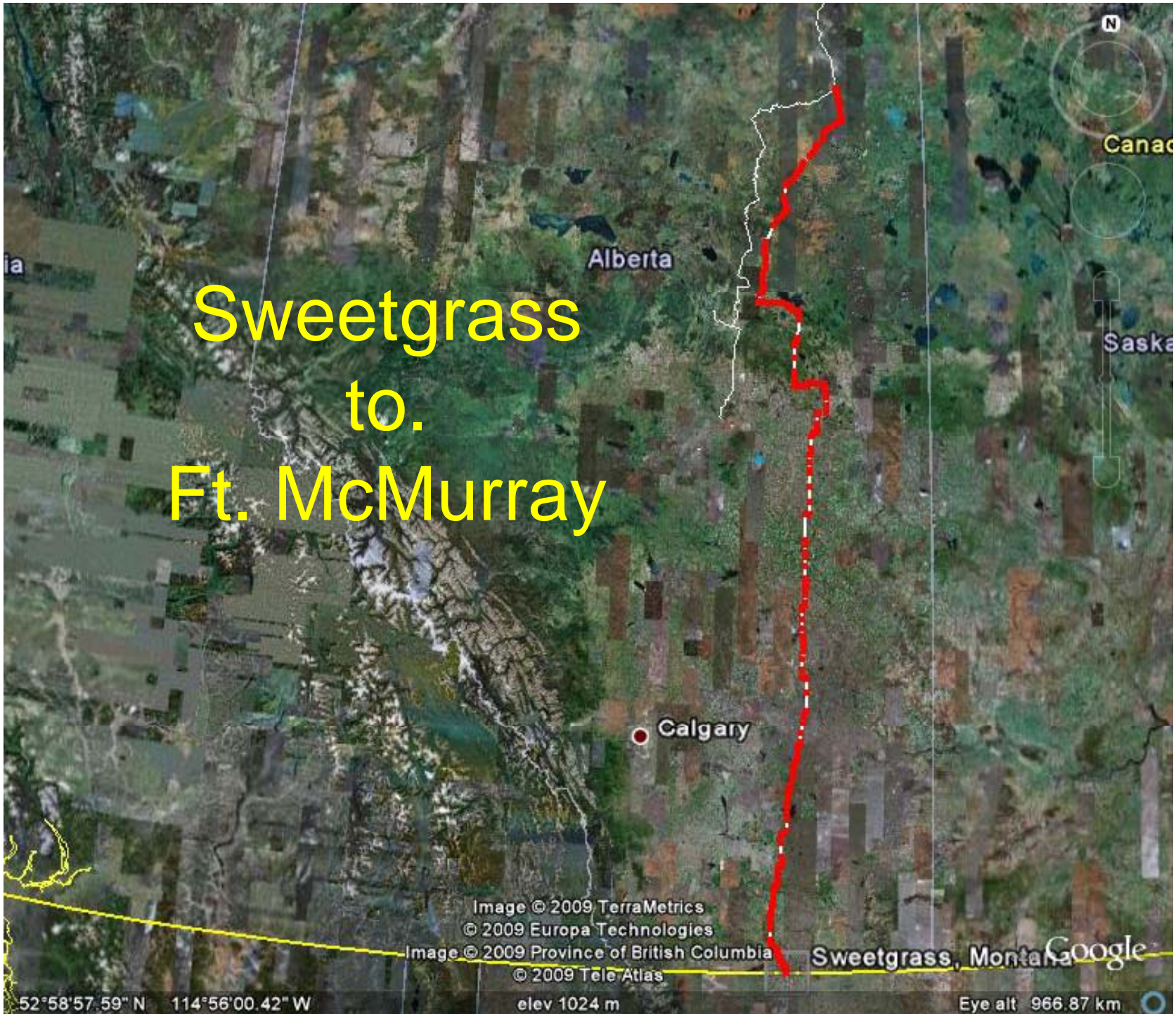
47°45'03.59" N 114°05'34.32" W

elev 1609 m

Eye alt 434.08 km



Sweetgrass to. Ft. McMurray



52°58'57.59" N 114°56'00.42" W

elev 1024 m

Eye alt 966.87 km

