



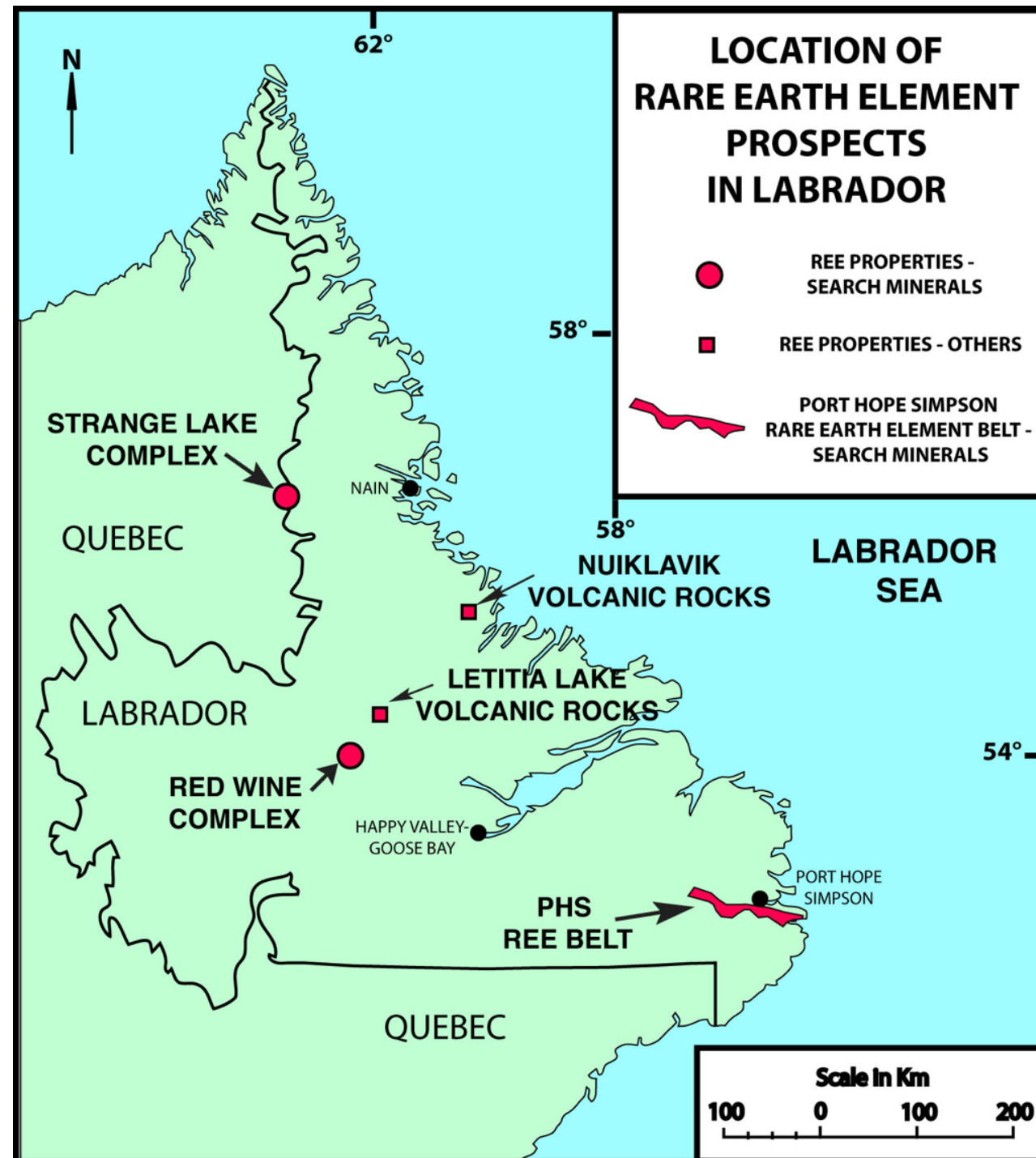
INTRODUCTION TO THE GEOLOGY OF RARE EARTH ELEMENT MINERALIZATION

Prospectors Course

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V.P. Exploration**

OUTLINE

- WHAT ARE RARE EARTH ELEMENTS (REE)?
- HOW ARE REE's CONCENTRATED?
- STYLES OF MINERALIZATION
- MAGMATIC MINERALIZATION REE MODEL
- EXPLORATION TECHNIQUES
- SOME EXAMPLES IN LABRADOR



VOLCANIC-HOSTED REE MINERALIZATION

- CLOSE TO VOLCANIC VENT
- USUALLY SMALL VOLUME
- TAP TOP OF MAGMA CHAMBER
- INCOMPATIBLE ELEMENT-RICH MAGMA
- DISSEMINATED, STRATABOUND STYLE
- VEINS & PEGMATITES ASSOCIATED

INTRUSION RELATED REE MINERALIZATION

- POTENTIAL FOR LARGER VOLUMES
- REE AT TOP/SIDES OF MAGMA CHAMBER
- DISTAL, MARGINAL & INTERNAL BODIES
- DISSEMINATED IN HOST INTRUSION
- PEGMATITES & VEINS

RARE EARTH ELEMENTS

- **Light REE's: La, Ce, Pr, Nd, (Pm), Sm**
- **Heavy REE's: Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu**

INCOMPATIBLE ELEMENTS

- **REE'S, Be, Li, Y, Zr, Hf, Nb, Ta, Sn, W, Mo, F, U, Th**

EXPLORATION TECHNIQUES/STRATEGY

- FIND INCOMPATIBLE-RICH INTRUSIONS OR VOLCANIC ROCKS (RESEARCH GEOLOGY/ PROSPECT)
- LITHOGEOCHEM/GRAB SAMPLES
- SPECTROMETER - U & TH WITH REE
- REE MINERAL IDENTIFICATION
- FIND PEGMATITES/HIGH LEVEL INTRUSIONS/NEAR VENT VOLCANICS

LABRADOR REE MINERALIZATION

- **INTRUSION RELATED:** STRANGE LAKE GRANITE, RED WINE COMPLEX, PORT HOPE SIMPSON REE DISTRICT, POPE'S HILL AREA(?)
- **VOLCANIC RELATED:** LETITIA LAKE GROUP, NUIKLAVIK VOLCANIC SUITE, FOX HARBOUR VOLCANIC SUITE

EXPLORATION MODEL FOR REE MINERALIZATION IN LABRADOR

