WRMC 2014

Safety, Communications, and Navigation in the Backcountry

Agenda

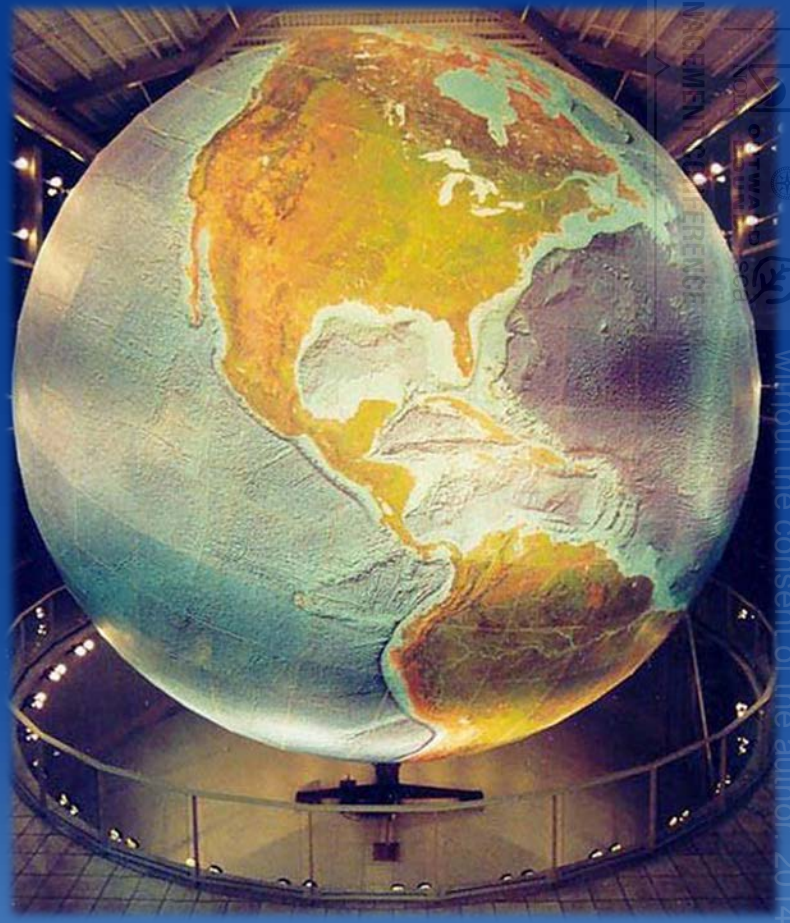
- Introduction
- Existing Backcountry practices
- Technology offerings today
- Trip leaders and technology
- SAR opinion on Sat Com devices
- DeLorme inReach Explorer
- Action Steps and Questions

Introduction – Chip Noble

- Product Manager
  Chip.noble@delorme.com
- 17 years with Team DeLorme
- Hiking, biking, kayaking, climbing, camping, hunting, fishing…
- Working with consumers, industry professionals, military, SAR groups, businesses...
- Developing for Desktop, Handheld, Mobile, and the Web…

Introduction – DeLorme

- DeLorme was founded in 1976 with publication of first Atlas & Gazetteer
- Expanded from paper maps to mapping software, GPS, and now satellite communications and navigation
- DeLorme brings core strengths of mapping, GPS, and satellite communications to the customer



Introduction – Action Steps

- What are your Action Steps after WRMC?
- Review current safety and communications protocols with your team and determine what role satellite technology might play in your trip planning, sharing, and exploring process.
- Review the strengths and weaknesses of each form of satellite communications technology and select the one that is appropriate for your team.
- Revise your team's safety and communications protocols to incorporate the newly selected satellite communications technology and stage a practice event with escalating levels of emergency response.

Backcountry Practices – Planning

- Full Disclosure: I am not a formally trained Trip Leader
- Fortunately you all are!
- Let’s make a list!
- Some questions:
  - How does a trip leader plan an event?
  - What steps go into taking a group on a trip?

Backcountry Practices – Emergencies

- Hopefully our trip plan covers safety and emergencies
- Let make another list!
- More questions:
  - How do trip leaders manage emergency situations?
  - Have you had to reach out for assistance on a trip?
  - What forms of emergency communication are used?

Technology Offerings – Communications

- Hopefully we have satellite communications in our list
- Let's talk about the different types of communicators
  - Satellite Phones
  - PLBs & EPIRBs
  - One-Way SENDs
  - Two-Way SENDs

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Technology Offerings – Sat Phones

- How they work
  - Geosynchronous satellites (Thuraya, Inmarsat)
  - Low Earth Orbit satellites (Iridium, Globalstar)
  - Both satellite configurations transmit to earth stations

- Benefits
  - Voice communications
  - Text messages
  - Global coverage (with Iridium)
- Challenges
  - High cost - $500 to $1,000 + for hardware then add airtime
  - Requires broadband connection, dropped signal drops call
  - Uses batteries faster than other options

- Manufacturers
  - LEO: Iridium, Globalstar, GEO: Thuraya, Inmarsat
- Iridium Extreme 9575 – $1240, plans vary - $50 monthly, $1.40 min

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Technology Offerings – PLBs (EPIRB, ELT)

- How they work
  - Digital 406 MHz signal
  - Uses Cospas-Sarsat system and GEO/LEOSAR satellites
  - Older models – triangulation, newer models – GPS location

- Benefits
  - Simple operation
  - SAR can home in on 406 MHz signal
  - No monthly subscription
  - 5 year battery life or first SOS
- Challenges
  - Can’t receive messages, One-Way only
  - No details for SAR other than “SOS”

- Manufacturers
  - ACR, McMurdo
- ACR ResQLink 375 – $260, no subscription plan

Technology Offerings – One-Way SENDs

- How they work
  - Uses Globalstar LEO satellite network
  - Uses GEOS Emergency Response
  - Sends message to earth station

- Benefits
  - Low cost device
  - Includes tracking in base plan
  - Website for tracking
- Challenges
  - Can’t receive messages
  - No message delivery confirmation
  - No coverage areas, north/south latitudes

- Manufacturers
  - SPOT
- SPOT Gen 3 – $150, plans from $180 annual

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Technology Offerings – Two-Way SENDs

- How they work
  - Uses Iridium LEO satellite network
  - Uses GEOS Emergency Response
- Benefits
  - Ability to Send and Receive messages
  - Handheld GPS Navigation features
  - Bluetooth to mobile mapping application
  - Website for trip planning and tracking
- Challenges
  - Does not offer voice
  - Slower buttons and virtual keyboard when not paired
- Manufacturers
  - DeLorme, YellowBrick (marine)
- inReach Explorer – $380, plans vary $15 monthly, $145 annual

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Technology Offerings – Comparison Chart

	Satellite Phones	PLBs	One-Way SENDs	Two-Way SENDs
SOS	◎	●	●	●
Voice	●	⊘	⊘	⊘
Custom Messages	●	⊘	⊘	●
Delivery Confirmation	●	⊘	⊘	●
Receive Messages	●	⊘	⊘	●
Tracking	◎	⊘	●	●
Navigation	⊘	⊘	⊘	●
Mobile App	⊘	⊘	⊘	●
Low Cost	⊘	●	●	●
No Monthly Plan	⊘	●	⊘	⊘

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Experience – Trip Leaders

- Having reviewed the technology that is available... What is your experience with satellite communication?
- Some questions:
  - Are you carrying a satellite communicator?
  - Do you carry a GPS for navigation?
  - Have they had a positive impact on your events?

Experience – Search and Rescue

- How does Search And Rescue feel about the technology?
- Benefits of knowing the location of the emergency
  - Saves time and reduces resources required to respond
- Risks of false alarm or misuse
  - RTCM SC128 works on standards to reduce these risks
  - Two-way allows SAR to verify emergency prior to dispatch
- Benefits of Send and Receive communication
  - Users can exchange information with SAR from the field
  - SAR can address specific medical or equipment issues

A Closer Look – DeLorme inReach

- An example of a Two-Way SENDs
  - DeLorme inReach Explorer
- Combining
  - Trip Planning
  - Communication & Navigation
  - Activity Sharing

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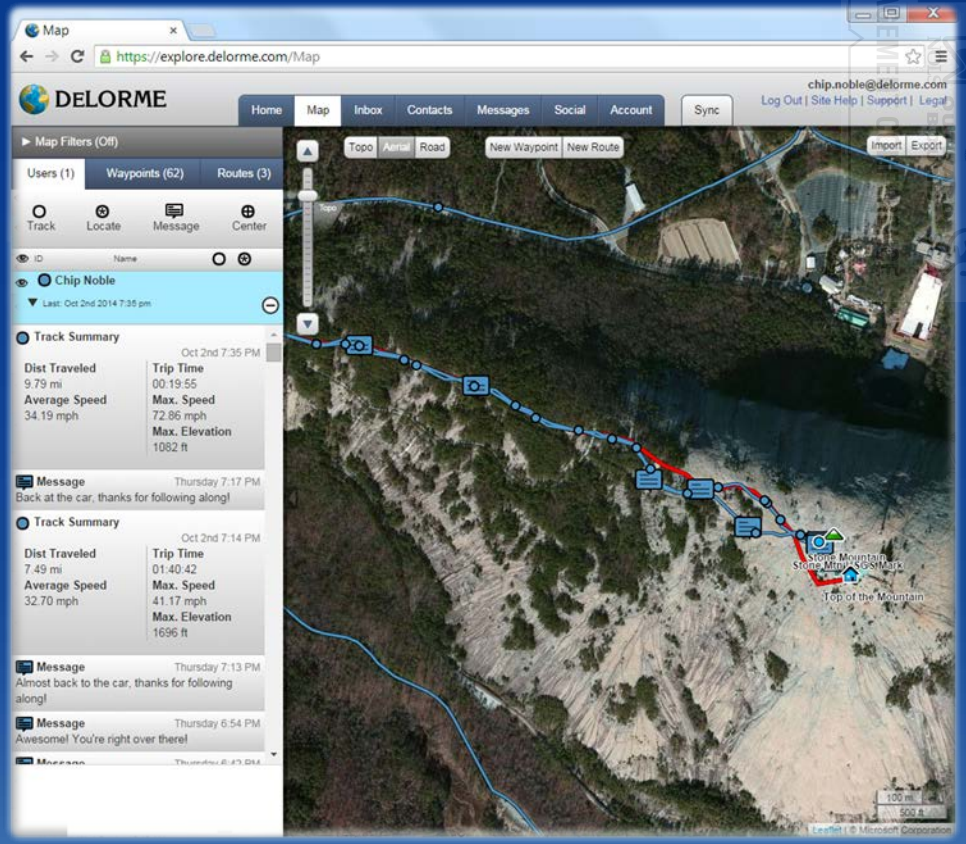
DeLorme inReach – Plan

- **Explore Web Portal**
  - Create Waypoints
  - Create Routes
  - Sync with inReach

  - Review Activity



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DeLorme inReach – Go

- **inReach Explorer**
  - Send & Receive Messages
  - Track Location
  - View Waypoints
  - View Routes
  - Navigate with Map

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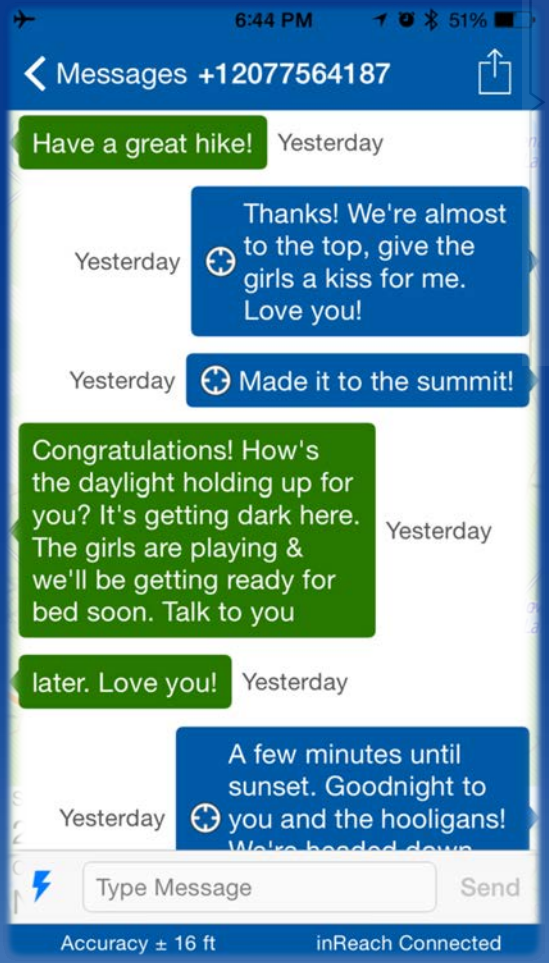
DeLorme inReach – Go

- **Earthmate App**
  - View Waypoints
  - Navigate with Map
  - Send and Receive Messages



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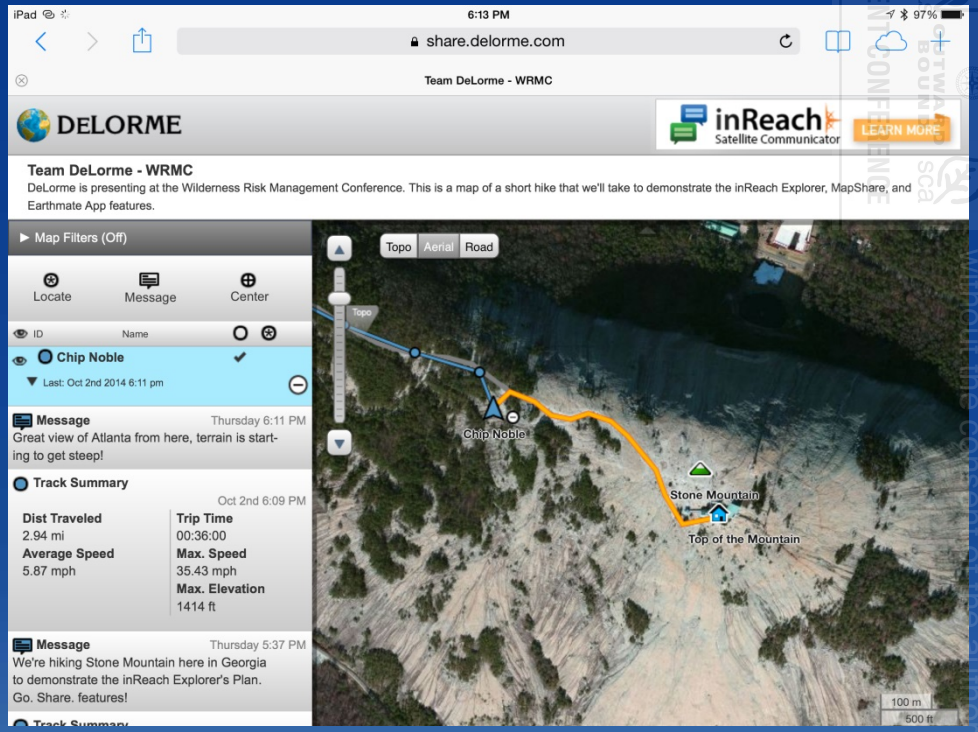
DeLorme inReach – Share

- **MapShare Website**
  - Where you've been
  - Where you're going
  - Details of your trip
  - Locate, Message



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Questions

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OUTWARD BOUND
NOLS
sca
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