

THE SOUTHWEST MINNESOTA BALLOONING COLLABORATIVE

Paul Seifert, Ph.D.

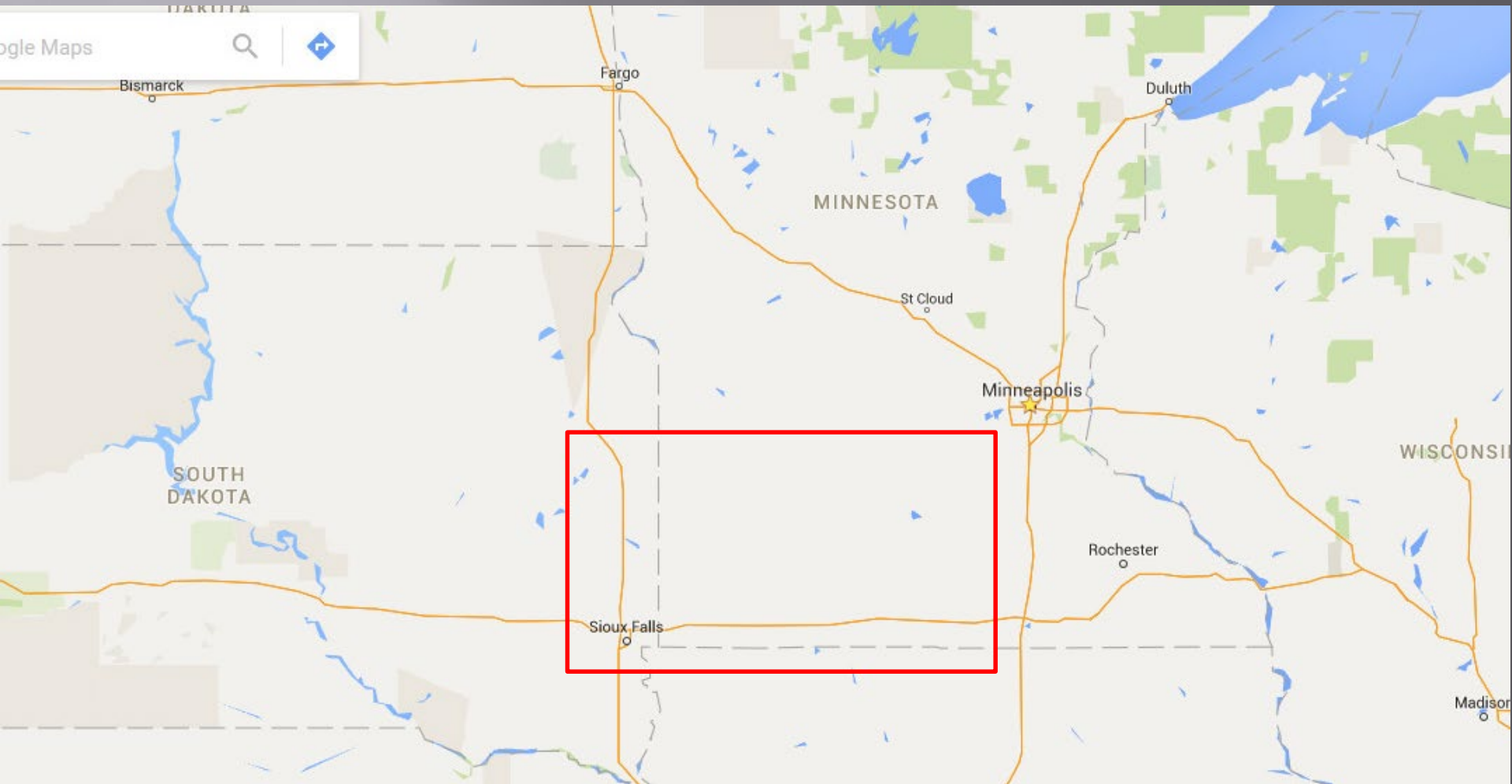
Minnesota West Community and Technical College

Ken Murphy, Ph.D.

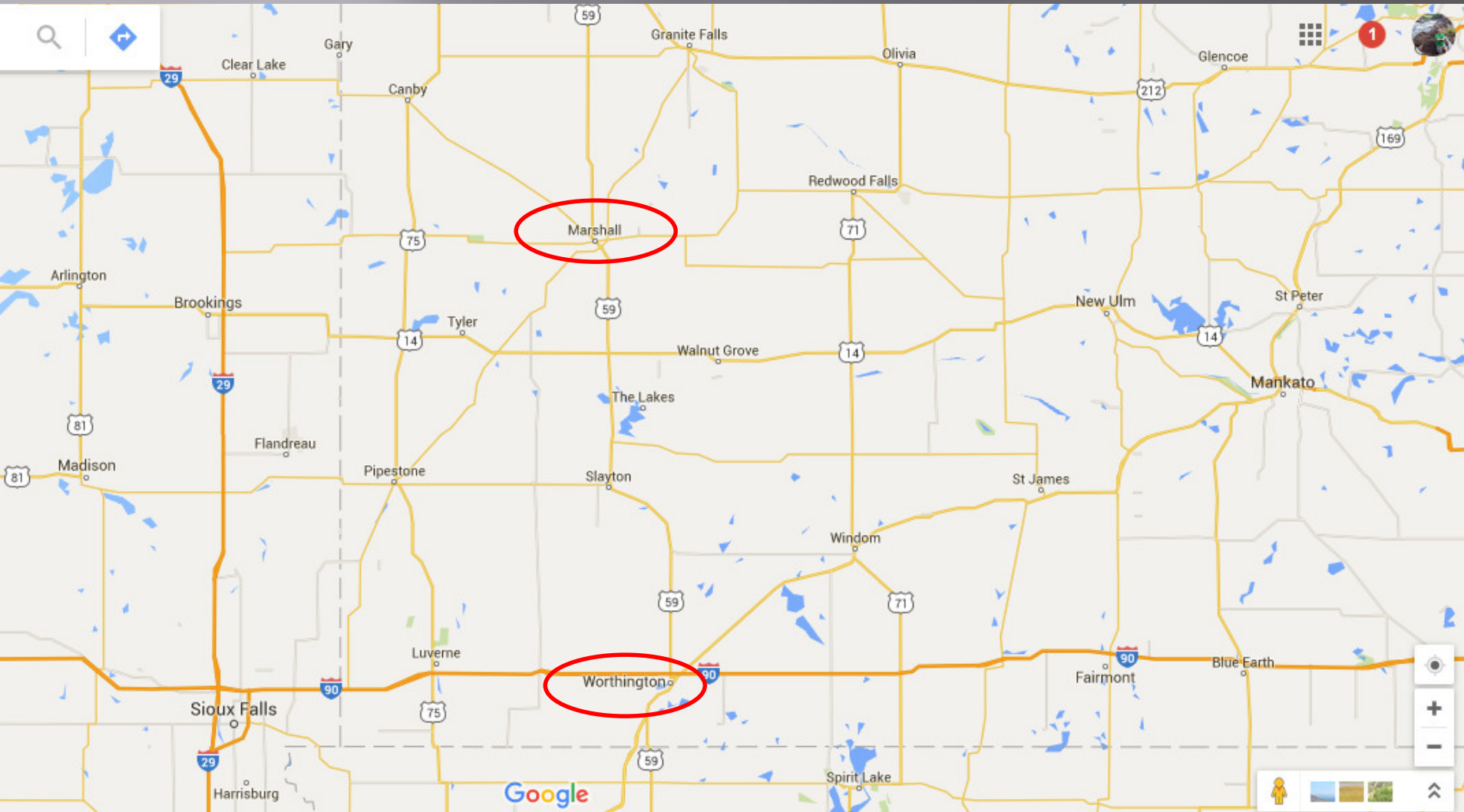
Southwest Minnesota State University

2016 Academic High Altitude Conference

Where We Are



Where We Are



Aerial View of Marshall



Who We Are



- ▣ Southwest Minnesota State University
 - Four-year university in the Minnesota State Colleges and Universities (MnSCU) system.
 - 3500FYE (6000 headcount) Students
 - 45 Undergraduate degrees, 3 Masters degrees
- ▣ Ken Murphy, Physics (@ SMSU since 1999)
 - Professor of Physics
 - Planetarium Director
 - Space Grant Affiliate Director

Who We Are



- ▣ Minnesota West Community and Technical College
 - Also part of MnSCU
 - Campuses in Worthington, Canby, Pipestone, Granite Falls, and Jackson. Learning Centers in Luverne and Marshall
 - 1800 full-time students (500 in Worthington), twice that many part-time students.
- ▣ Paul Seifert, Physics
 - Began teaching at MN West in 2012, previously at Concordia College, Moorhead, MN (affiliated with Space Grant there).

Students

- ▣ Exactly what you would expect:
 - SMSU: Primarily students seeking four-year B.A. and B.S. degrees
 - MN West: Primarily technical programs, but about 1/3 Liberal Arts students seeking eventual transfer to a four-year institution.

Collaboration Goals

- ▣ Give students at both institutions opportunities neither school has now:
 - Hands-on technical project to compliment and expand on skills learned in the classroom
 - Collaboration with students from a different background/institution.
 - Stronger ties between local two-year and four-year schools in SW Minnesota
 - Offer engaging hands-on STEM opportunities

First Year Goals

- ▣ Get collaboration going
- ▣ Get something in the air!
- ▣ Establish a workflow plan
- ▣ Attract new students for future participation
- ▣ Explore future possibilities

Collaboration/Meetings

- ▣ Initial meetings early Fall Semester at either campus
- ▣ Continued collaboration via Skype, Adobe Connect, ITV, email.
- ▣ In-person training meetings to prep for launch
- ▣ Launch

Previous Experience in Ballooning

- ▣ Paul Seifert had a program while at Concordia College (2002 – 2012)
 - Supported by Minnesota Space Grant Consortium
 - Used for undergraduate summer REU and advanced physics lab activities
 - Still retains most of the equipment

- ▣ Ken Murphy
 - None, but learning!
 - Attending summer 2016 introductory workshop

Current Equipment

- ▣ BigRedBee APRS GPS/transmitter
- ▣ PocketTracker APRS
- ▣ AM CW beacon (back-up tracking)
- ▣ Arduino Uno Microcontrollers
- ▣ Numerous Arduino data loggers and sensors
 - Temp, pressure, magnetic fields, accelerometers, GPS, data logger, compass, humidity, Geiger counter, etc.
- ▣ Several models of GoPro cameras

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- ▣ Minnesota Space Grant Consortium
- ▣ SMSU and MN West
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 - Ken Murphy: Ken.Murphy@smsu.edu