

**TECHNICAL ADVISORY COMMITTEE  
TO TEXNET AND BUREAU OF ECONOMIC GEOLOGY**

**Meeting Minutes**

Wednesday, December 6, 2023 – 9:00am to 10:30am

**OPENING**

The meeting of the TexNet Technical Advisory Committee was called to order at ~9:00am on Wednesday December 6, 2023.

**PRESENT**

Alexandros Savvaidis, Manager of TexNet  
Brian Stump, Committee Chair  
Mark Boyd, Committee Member  
Dave Cannon, Committee Member  
Chris Hillman, Committee Member  
Jeff Nunn, Committee Member  
Kris Nygaard, Committee Member (via Teams)  
Aaron Velasco, Committee Member

**ABSENT**

Scott Mitchell, Committee Member  
Scott Tinker, Director, BEG

**AGENDA FOR DECEMBER 6th MEETING**

1. Approval of Minutes of the July 12th, and October 17<sup>th</sup>, 2023, meetings.
2. Update on the Hiring Plan (30 min)
3. Finalize mission statement and objectives (30 min)
4. Update on releasing M1.5+ auto-picked events (5 min)
5. Budget for FY 2023-2024 (10 min)
6. TexNet TAC suggestions for the subsequent meetings (15 min)

**1. APPROVAL OF JULY 12<sup>th</sup> and OCTOBER 17<sup>th</sup>, 2023 MEETING MINUTES**

The Committee reviewed the 12 July 2023 and 17 October 2023 Meeting Minutes with no changes being suggested; as such a motion was made to approve both of these Meeting Minutes and the motion unanimously approved.

**2. HIRING UPDATE**

Alexandros Savvaidis updated the TAC on the status of hiring in Field Operations, Seismic Analysts, IT and Scientific Support. With the new and expanded state funds a number of critical hires are now underway.

An offer letter is being prepared for an Instrumentation Engineer whom is expected to join the Field Operations Team in January 2023.

Victor Salles has been hired and joined the Seismic Analysts in November, and it is planned that Katerine Vallejo will join the Seismic Analysis Team in February 2024. Interviews with two more individuals are planned in December for the remaining two analyst positions. The goal is to staff the analysis positions with five full-time individuals, and the goal is to have the fifth individual hired by 2Q24.

Regarding the IT Team, as of December, there have only been 6 applicants for the team lead position. The challenges in staffing this position were discussed due to the salary range for this position and the difficulty in competing with IT industry salaries.

The TAC recommended that Alexandros further raise the issue of UT-BEG salary ranges with BEG leadership to explore whether changes to the pay structure could be implemented for the IT Lead position so that a more competitive salary could be offered in order to secure an appropriately experienced and qualified individual for this position. It was also recommended that Alexandros further discuss with BEG leadership the possibility and opportunities for filling the position from current BEG staff that are currently qualified for the position.

An offer is being prepared for the Velocity Modeling position to a candidate whom is an Assistant Research Professor (Ph.D.); the proposed offer must be approved by the Provost before sending to the candidate.

There was brief discussion on current capacity for reporting events, right now with the current staffing and auto-picking strategy implemented, TexNet can capture and report the same day M2+ events for entire State of Texas and M1.5+ within the Permian Basin.

During this discussion of IT staffing and network performance, it was noted that the TexNet network server went down offline the previous weekend and currently there is no redundant server. Alexandros informed the TAC that two years ago TexNet worked on a plan for a collocated server that due to lack of funding was partially developed. The additional funding of the current biennium, per the legislator approval, is for human resources and the collocated server full deployment is pending full deployment. Alexandros is looking for additional resources, outside TexNet.

The TAC recommended that as soon as the IT Team has the new hires to explore options for securing a redundant backup server to mitigate issues should the current server go offline in the future.

### **3. FINALIZE MISSION STATEMENT & OBJECTIVES**

A detailed discussion of the current TexNet mission statement that previously occurred in the past two TAC meetings has resulted in proposed modifications. The TAC discussed in detail the proposed revisions to the Mission Statement. Immediately below are reproduced the current and proposed updated mission statement.

#### **Current TexNet Mission Statement:**

*Serve as an independent scientific body that measures and analyzes earthquakes and associated data and distributes and communicates these data and related products to government, industry, and the public for their benefit and the benefit of the State of Texas.*

#### **Proposed Updated TexNet Mission Statement:**

*Serve as an **independent** scientific body that **monitors** earthquake activity, **analyzes** associated data, and **distributes** findings and data to government, industry, and the public for their benefit and the benefit of the State of Texas.*

In a similar fashion, a detailed discussion of the current TexNet Objectives that previously occurred in the past two TAC meetings has resulted in proposed modifications. The TAC discussed in detail the proposed revisions to the Objectives. Provided immediately below are reproduced the current and proposed updated mission statement.

#### **Current TexNet Objectives:**

1. *Maintain a network of seismometers capable of accurately recording earthquake data across Texas.*
2. *Exceed the network technical performance metrics established in consultation with the TAC, USGS and other authoritative bodies.*
3. *Continuously strive to increase the accuracy of hypocenter location analyses and report with uncertainties.*
4. *Maintain high quality electronic databases of all event catalogs and products and make them available as appropriate.*
5. *Seek to understand causes of seismic activity in Texas.*
6. *Seek to understand and quantify the impact and risk to public safety and infrastructure.*
7. *Distribute data and analyses to stakeholders effectively and in a timely fashion recognizing their different needs. Stakeholders include:*
  - a. *Texas Railroad Commission (timely, mission critical supporting information)*
  - b. *Texas Emergency Management, Texas Department of Transportation, Texas Commission Environmental Quality, University Lands (rapidly for large events)*
  - c. *Local Communities*
  - d. *Oil and Gas Industry*
  - e. *Academic Research Community*
  - f. *General Public*
  - g. *Media*
8. *Receive and utilize input from the stakeholders.*

**Revised TexNet Updated Objectives:**

1. *Maintain a network of seismometers across Texas that continuously and accurately record earthquake data.*
2. *Exceed the network technical performance metrics established by consultation with the TAC and USGS.*
3. *Strive to reduce the bias and the uncertainty of epicenter and depth estimates.*
4. *Seek to understand causation of seismicity in Texas.*
5. *Maintain, and make available in a timely way, all event catalogs and databases of waveform data and products to stakeholders:*
  - a. *Texas Railroad Commission*
  - b. *Texas Emergency Management, Texas Department of Transportation, Texas Commission Environmental Quality, Texas Groundwater Protection Council, University Lands*
  - c. *Local Communities*
  - d. *Oil and Gas Industry*
  - e. *Academic Research Community*
  - f. *General Public*
  - g. *Media*

6. Receive and assess input from the stakeholders.
7. Seek to understand and quantify the impact and risk to public safety and infrastructure.
8. Report to State Legislator, the Governor's office, BEG and The University of Texas at Austin.

Following the extensive discussion of the proposed revised Mission Statement and Objectives, a motion was made to approve the proposed revised Mission Statement and Objectives and the motion was unanimously approved. As such, the proposed revisions are formally adopted as the TexNet Mission Statement and Objectives.

#### 4. UPDATE ON RELEASING M1.5+ AUTO-PICKED EVENTS

Alexandros updated the TAC on their reporting metrics. Progress has been made in terms of using auto-picked events in areas with an adequate number of local stations for constraining depth. A three-part plan for quick release of event locations down to M1.5 was proposed.

1. As of November 1<sup>st</sup>, 2023, report auto-picked events of M1.5+ for the Delaware Basin. Manually review events at the next business day or as soon as possible thereafter.
2. By end of Q1-2024 report auto-picked events of M1.5+ for Eagle Ford.
3. As soon as the Midland basin seismic network density increases to a similar level as the Delaware basin, report auto-picked events of M1.5+.

The TAC suggested that at the next meeting it would be desirable to further discuss Item 3 above, and also suggested the TexNet prepare a listing of latitude / longitude coordinates of current and desired stations so that this list could be provided to Oil & Gas operators in the area to better support seismometer placement.

Alexandros also reported on the recent progress in using machine learning (ML) to detect events in three areas of Permian Basin. He highlighted that the testing of Machine Learning (ML) approaches to detect seismicity in three regions of the Permian Basin are focused in three areas: (a) North-Central Culberson (interstation distance 5-15km), (b) Coalson Event (interstation distance 5-10km); and (c) Range Hill Event (interstation distance 25km).

#### 5. BUDGET FOR FY 2023-2024

The TexNet Budget for 2023 was discussed and summarized in the following table:

Project		Year 1
Network Operations (Seismic Stations, Daily Earthquake Catalog)	56.07%	\$1,700,000.00
Seismicity Analysis (Earthquake Catalogs, Seismotectonics, Modeling and Software Evaluation)	33.82%	\$1,025,435.56
Machine Learning in Seismology	5.14%	\$155,778.27
Quality Controlled Geodatabases and Web Tools	1.62%	\$49,002.81
Analysis of Human Operations and Seismicity	1.71%	\$51,783.35
Earthquake Hazard	1.65%	\$50,000.00
	100.00%	\$3,032,000.00

The TAC recommended that a more detailed budget breakdown be provided at the March TAC meeting, so that the TAC can better understand further details of tasks, activities, and operations that are being funded under the categories listed in the summary table.

During this discussion, it was highlighted that the TAC desired to better understand the budget breakdown associated with TexNet's primary focus of "timely and accurate reporting of seismic events" and work efforts associated with improving accuracy of event location and ancillary research that furthers improvement in event location accuracy.

## **6. SUGGESTED TOPIC FOR NEXT MEETING**

Possible topics that were suggested for discussion at the next meeting were proposed as follows:

1. Update on hiring plan.
2. Update on releasing M1.5+ auto-picked events
3. Operations (status/maintenance, resources)
4. Budget discussion
5. Publications and presentations update
6. Suggestions for the subsequent meetings

The TAC discussed that in the meeting of 2Q2024 to discuss the priorities of TexNet (i.e. Operation and Research, Last Update 09/23/2020).

## **ADJOURNMENT**

Meeting was adjourned at ~10:45am by Brian Stump, Committee Chair

**Minutes submitted by:** Kris Nygaard, Committee Member

**Minutes approved on March 26, 2024, by:**

Brian Stump, Committee Chair

Mark Boyd, Committee Member (via Teams)

Dave Cannon, Committee Member

Chris Hillman, Committee Member

Jeff Nunn, Committee Member

Kris Nygaard, Committee Member

Aaron Velasco, Committee Member

Scott Mitchell, Committee Member

Larry French, Committee Member