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Elevation Contour Map of the Precambrian Surface of South Dakota Sioux Ridge Inset

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INTRODUCTION

The elevation contour map of the Precambrian surface of South Dakota, Sioux Ridge Inset, was created using depth and rock-type data from more than 2,100 drill holes in combination with published depths to the Precambrian basement and Precambrian rock types intersected (such as granite and Sioux Quartzite) and published Precambrian structural control data for individual counties within the inset area (see SELECTED REFERENCES). In the few small areas of this inset where Precambrian rocks are exposed at the surface, elevation contours were taken from 1:24,000-scale hypsography (digitized from digital raster graphs or DRGs). These contours were then modified based on drill-hole data in and around outcrop areas.

DATA
The drill-hole data presented on this inset are a subset of available data for the area. Presented here are Precambrian intersect data from 1,673 drill holes and an additional 207 drill holes that did not intersect the Precambrian basement but which help constrain the contour placement. The data density is too great to present in the dataset in its entirety at the published scale. The complete dataset is available for download at the Geological Survey Program website. Further discussion on data sources and drill-hole location is included on the 1:500,000-scale map titled *Elevation contour map of the Precambrian surface of South Dakota*.

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There were several sources of unpublished information that were used in the development of this map which are acknowledged below. The sources were (1) a database of down-hole geophysical logs developed by the Geological Survey Program, (2) files of the Geological Survey Program containing geochemical data compiled by R.A. Schoon and a May 1994 letter from R.A. Schoon to "Placer Dome, U.S." listing selected test holes and wells intersecting the Precambrian surface, (3) compilations in 1952 and 1963 by F.V. Steece of test holes and wells intersecting the Precambrian surface, and (4) internet databases developed by the Waters Rights Program, Department of Environment and Natural Resources, containing information on a statewide network of observation wells, water right permits, and well completion reports.

DRILL HOLES

647 Data point; number is elevation in feet relative to mean sea level. A "less than" symbol (<) indicates elevation is less than the number shown.

ROCK TYPE

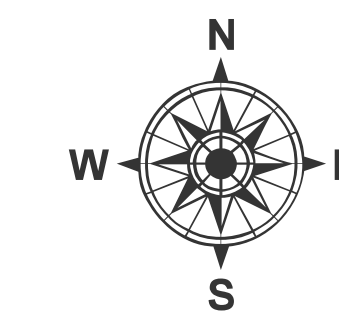
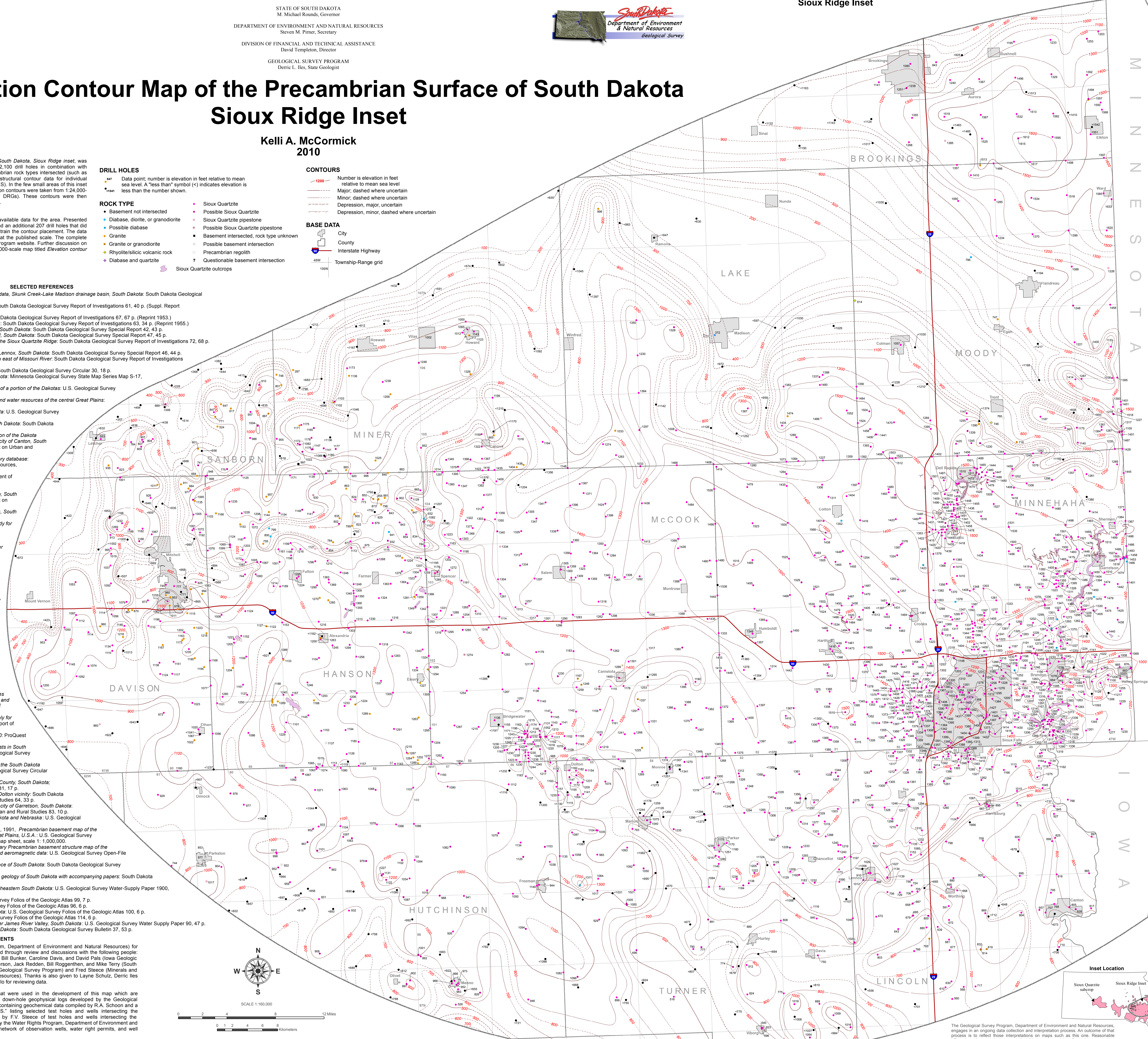
- Basement not intersected
- Diabase, diorite, or granodiorite
- Possible diabase
- Granite
- Granite or granodiorite
- Rhyolite/silicic volcanic rock
- Diabase and quartzite
- Sioux Quartzite
- Possible Sioux Quartzite
- Sioux Quartzite pipestone
- Possible Sioux Quartzite pipestone
- Basement intersected, rock type unknown
- Possible basement intersection
- Precambrian regolith
- Questionable basement intersection
- Sioux Quartzite outcrops

CONTOURS

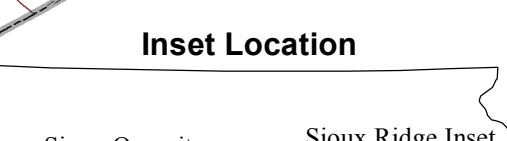
- 1200 Number is elevation in feet relative to mean sea level
- Major, dashed where uncertain
- Minor, dashed where uncertain
- Depression, minor, dashed where uncertain

BASE DATA

- City
- County
- Interstate Highway
- Township-Range grid



Map Projection:
North American Datum 1927
Lambert Conformal Conic



The Geological Survey Program, Department of Environment and Natural Resources, engages in an ongoing data collection and interpretation process. An outcome of that process is to reflect those interpretations on maps such as this one. Reasonable efforts have been made to ensure that this map accurately reflects the source data used in its preparation. This map is site specific. As additional data become available, geologic interpretations may be revised and the map may be updated by the Geological Survey Program. This map should not be enlarged or otherwise used in an attempt to interpret more detail than can be seen at the 1:160,000 scale.