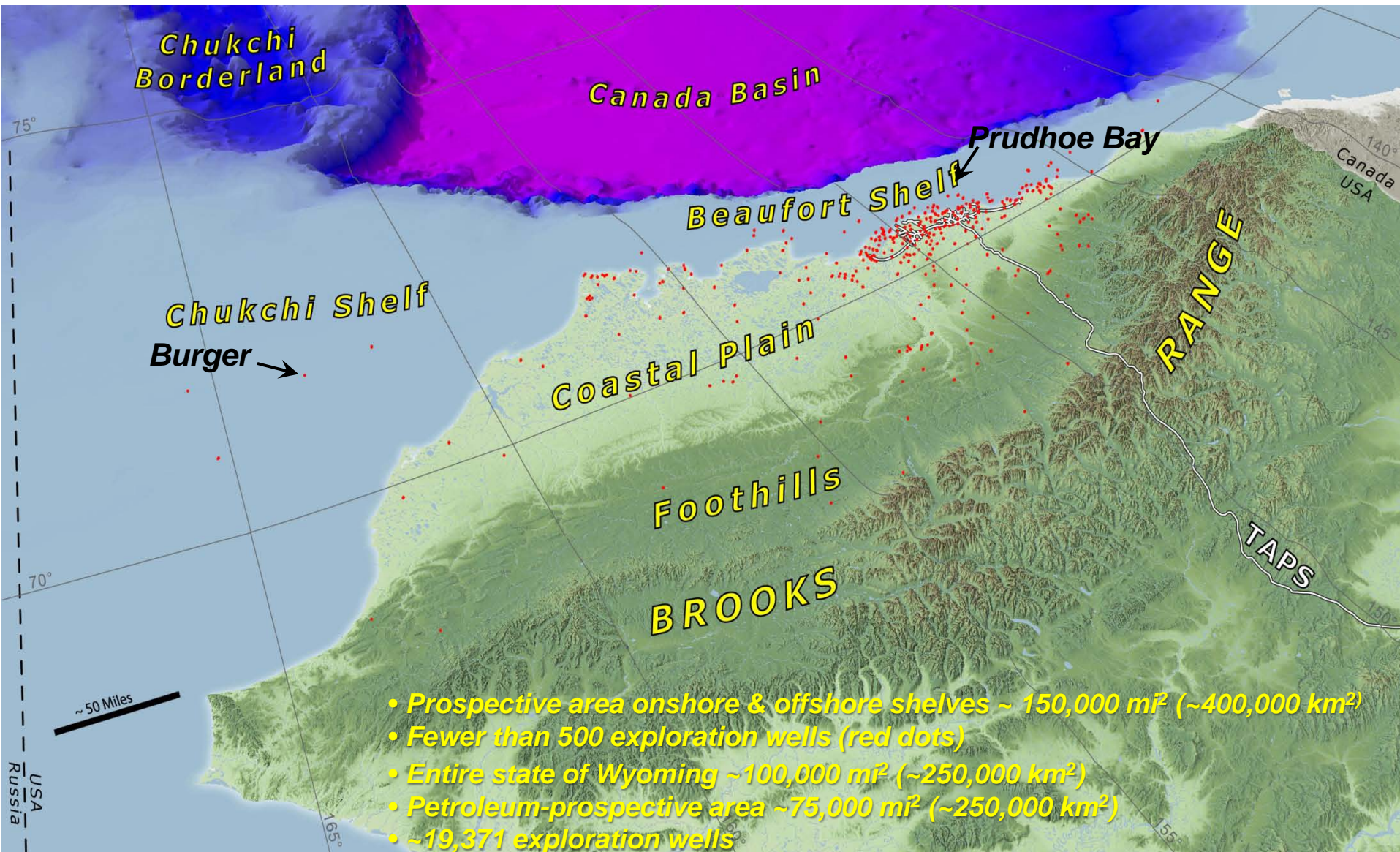
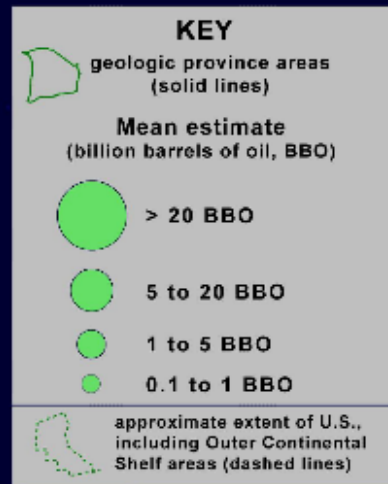
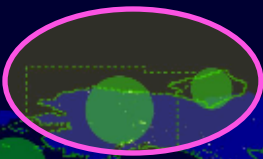


Arctic Alaska Conventional Oil & Gas Exploration Potential



Global Conventional Oil Resources



Global Conventional Oil Resources - Undiscovered, Technically Recoverable

Data sources:

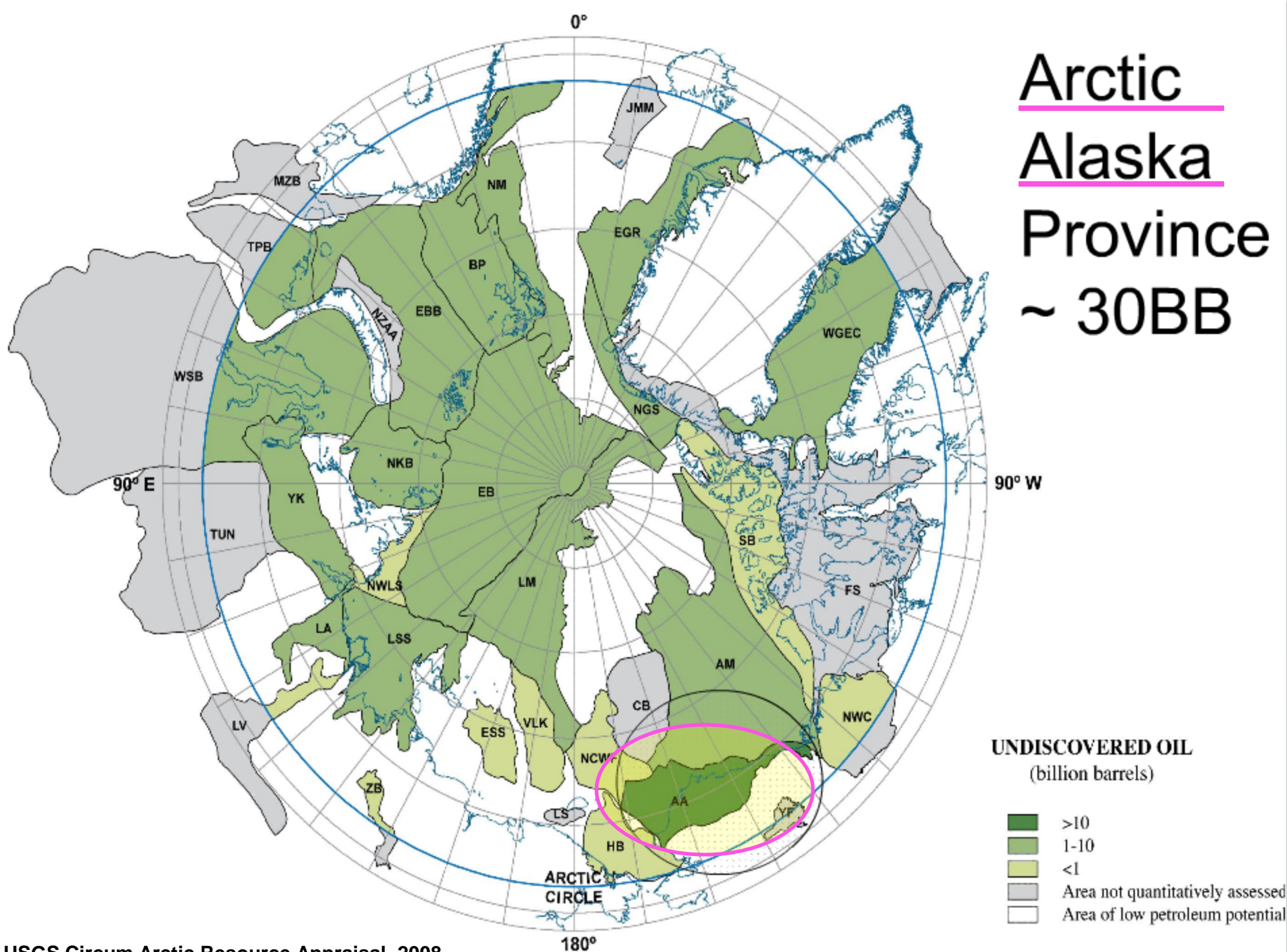
- USGS World Petroleum Assessment 2000 and updates
- USGS National Oil and Gas Assessment, 2006 update
- MMS 2006 National OCS Assessment
- Earth At Night Image courtesy of NASA/GSFC, NOAA/NGDC DMSP Digital Archive

Note: Map does not include results from USGS Circum-Arctic Resource Appraisal

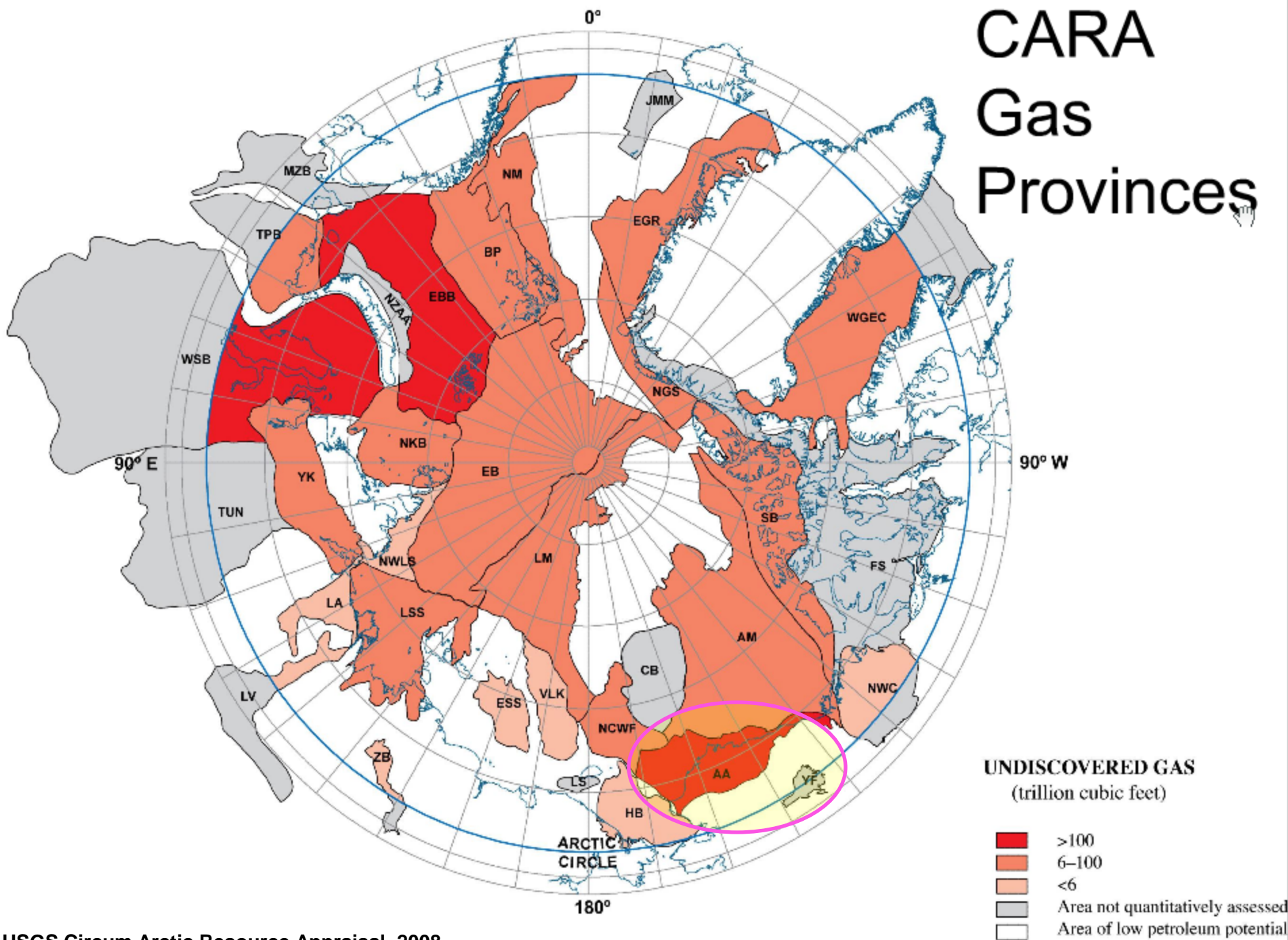


Note: Does not include results from USGS Circum-Arctic Oil and Gas Resource Appraisal study.

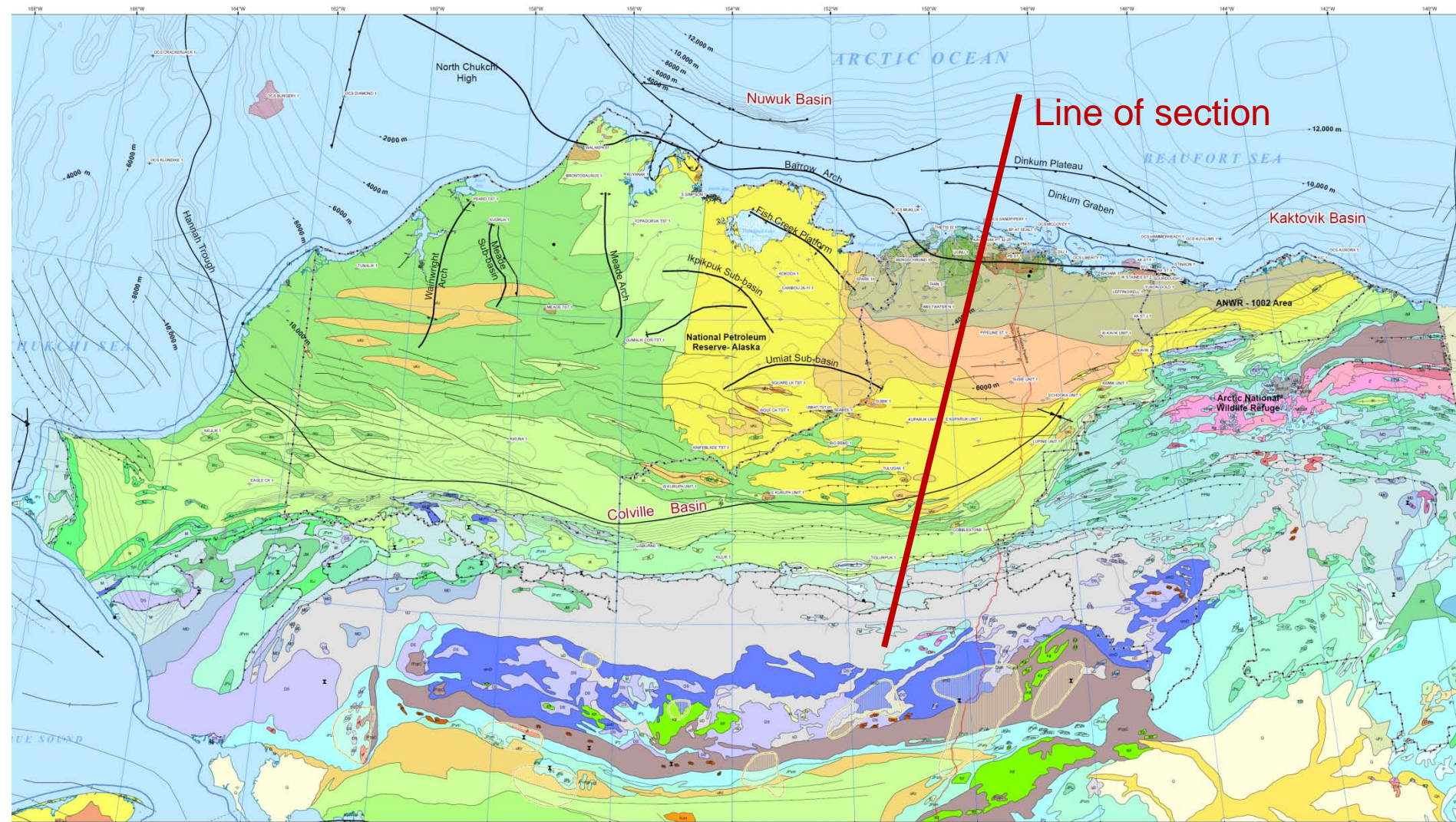
Arctic Alaska Province ~ 30BB



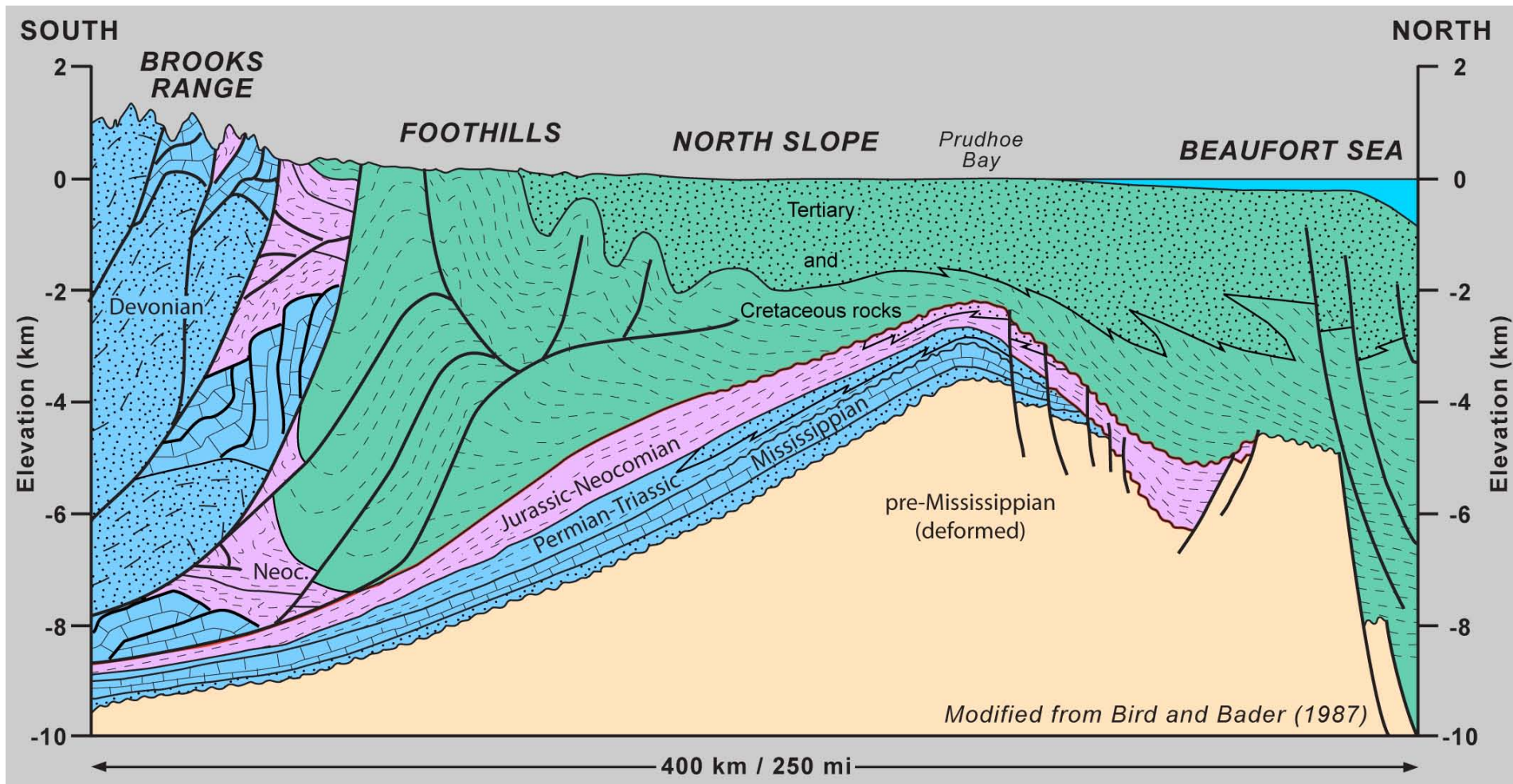
CARA Gas Provinces



North Slope Regional Geology

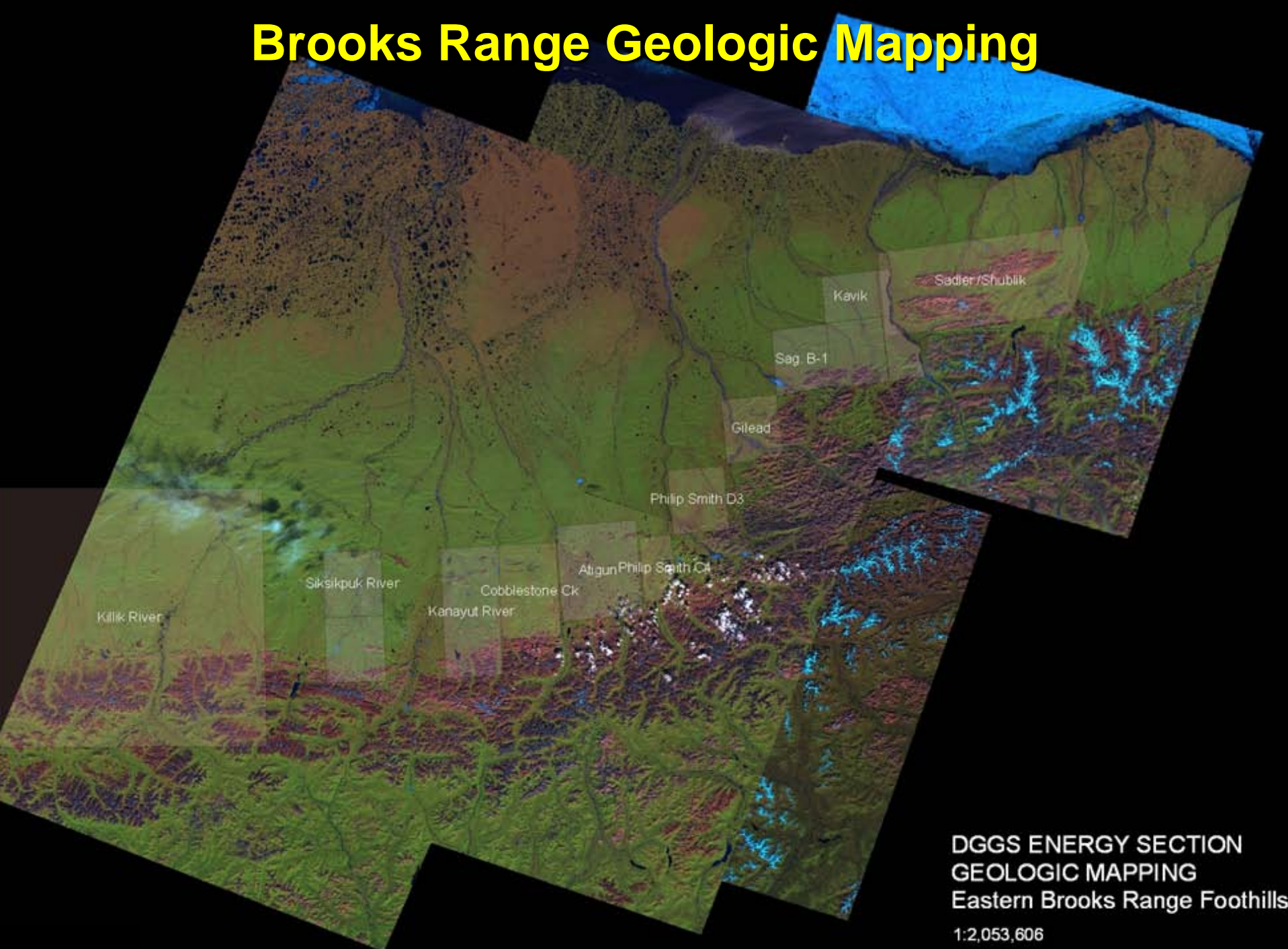


Simplified and Generalized Regional Cross-section



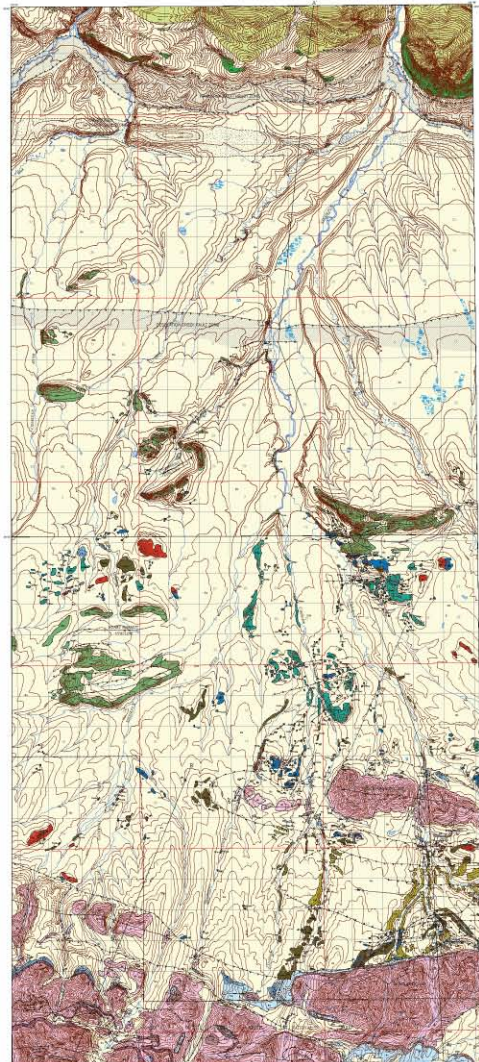
USGS

Brooks Range Geologic Mapping



Geologic Mapping

ALASKA DEPARTMENT OF GEOLOGICAL & GEOSPATIAL SURVEYS



SYMBOLS AND ABBREVIATIONS

Geological Features

Topographic Features

Water Features

Other Features

Legend

Scale

North Arrow

Map Title

Map Date

Map Author

Map Project

Map Notes

Map Credits

Map Acknowledgments

Map Distribution

Map Contact

Map Address

Map Phone

Map Fax

Map Email

Map Website

Map Keywords

Map Abstract

Map Summary

Map Conclusion

Map References

Map Bibliography

Map Appendix

Map Glossary

Map Index

Map Table of Contents

Map Table of Figures

Map Table of Tables

Map Table of Figures

Map Table of Tables

Map Table of Figures

SYMBOLS AND ABBREVIATIONS

Geological Features

Topographic Features

Water Features

Other Features

Legend

Scale

North Arrow

Map Title

Map Date

Map Author

Map Project

Map Notes

Map Credits

Map Acknowledgments

Map Distribution

Map Contact

Map Address

Map Phone

Map Fax

Map Email

Map Website

Map Keywords

Map Abstract

Map Summary

Map Conclusion

Map References

Map Bibliography

Map Appendix

Map Glossary

Map Index

Map Table of Contents

Map Table of Figures

Map Table of Tables

Map Table of Figures

Map Table of Tables

Map Table of Figures

SYMBOLS AND ABBREVIATIONS

Geological Features

Topographic Features

Water Features

Other Features

Legend

Scale

North Arrow

Map Title

Map Date

Map Author

Map Project

Map Notes

Map Credits

Map Acknowledgments

Map Distribution

Map Contact

Map Address

Map Phone

Map Fax

Map Email

Map Website

Map Keywords

Map Abstract

Map Summary

Map Conclusion

Map References

Map Bibliography

Map Appendix

Map Glossary

Map Index

Map Table of Contents

Map Table of Figures

Map Table of Tables

Map Table of Figures

Map Table of Tables

Map Table of Figures

SYMBOLS AND ABBREVIATIONS

Geological Features

Topographic Features

Water Features

Other Features

Legend

Scale

North Arrow

Map Title

Map Date

Map Author

Map Project

Map Notes

Map Credits

Map Acknowledgments

Map Distribution

Map Contact

Map Address

Map Phone

Map Fax

Map Email

Map Website

Map Keywords

Map Abstract

Map Summary

Map Conclusion

Map References

Map Bibliography

Map Appendix

Map Glossary

Map Index

Map Table of Contents

Map Table of Figures

Map Table of Tables

Map Table of Figures

Map Table of Tables

Map Table of Figures

SYMBOLS AND ABBREVIATIONS

Geological Features

Topographic Features

Water Features

Other Features

Legend

Scale

North Arrow

Map Title

Map Date

Map Author

Map Project

Map Notes

Map Credits

Map Acknowledgments

Map Distribution

Map Contact

Map Address

Map Phone

Map Fax

Map Email

Map Website

Map Keywords

Map Abstract

Map Summary

Map Conclusion

Map References

Map Bibliography

Map Appendix

Map Glossary

Map Index

Map Table of Contents

Map Table of Figures

Map Table of Tables

Map Table of Figures

Map Table of Tables

Map Table of Figures

SYMBOLS AND ABBREVIATIONS

Geological Features

Topographic Features

Water Features

Other Features

Legend

Scale

North Arrow

Map Title

Map Date

Map Author

Map Project

Map Notes

Map Credits

Map Acknowledgments

Map Distribution

Map Contact

Map Address

Map Phone

Map Fax

Map Email

Map Website

Map Keywords

Map Abstract

Map Summary

Map Conclusion

Map References

Map Bibliography

Map Appendix

Map Glossary

Map Index

Map Table of Contents

Map Table of Figures

Map Table of Tables

Map Table of Figures

Map Table of Tables

Map Table of Figures

SYMBOLS AND ABBREVIATIONS

Geological Features

Topographic Features

Water Features

Other Features

Legend

Scale

North Arrow

Map Title

Map Date

Map Author

Map Project

Map Notes

Map Credits

Map Acknowledgments

Map Distribution

Map Contact

Map Address

Map Phone

Map Fax

Map Email

Map Website

Map Keywords

Map Abstract

Map Summary

Map Conclusion

Map References

Map Bibliography

Map Appendix

Map Glossary

Map Index

Map Table of Contents

Map Table of Figures

Map Table of Tables

Map Table of Figures

Map Table of Tables

Map Table of Figures

ALASKA DEPARTMENT OF GEOLOGICAL & GEOSPATIAL SURVEYS

Geologic Map of the Siksikpuk River Area, Chandler Lake Quadrangle, Alaska

by

P.R. Peopple, W.K. Walker, M.A. Warr, R.E. Swenson, C.G. Mall, J.A. Damsch, E.E. Harris, E.S. Frazee, R.R. Redford, and A.M. Loveland

Geological Survey of Alaska

Geological Survey of Alaska

Geological Survey of Alaska

Geological Survey of Alaska

Geological Survey of Alaska

Geological Survey of Alaska

Geological Survey of Alaska

Geological Survey of Alaska

Geological Survey of Alaska

Geological Survey of Alaska

Geological Survey of Alaska

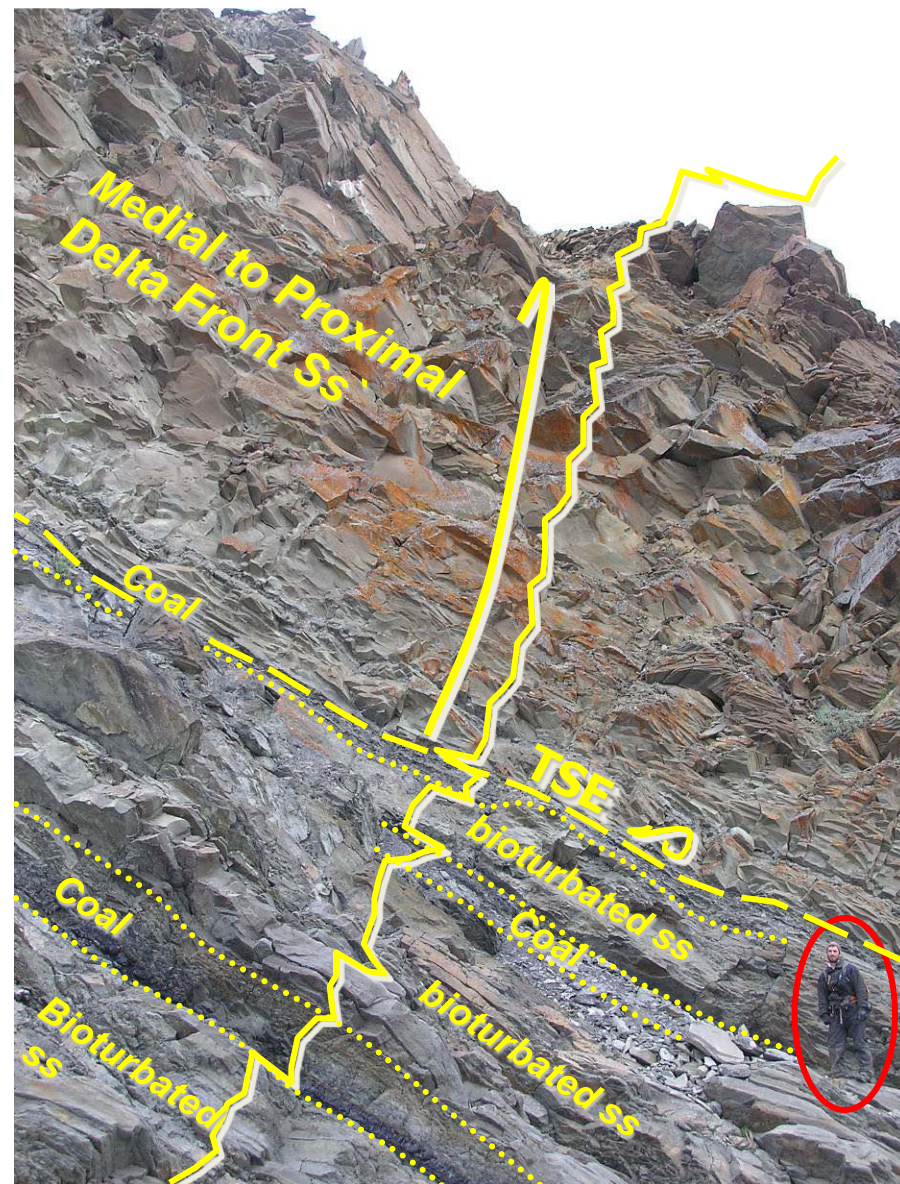
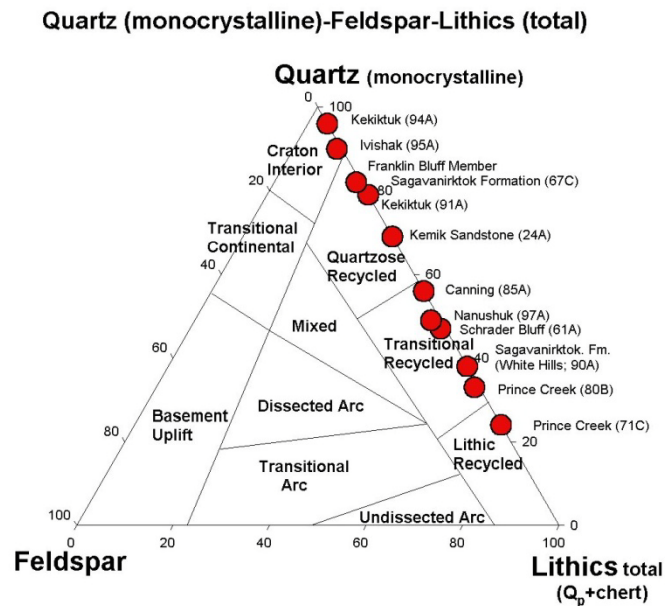
Geological Survey of Alaska

Geological Survey of Alaska

Geological Survey of Alaska

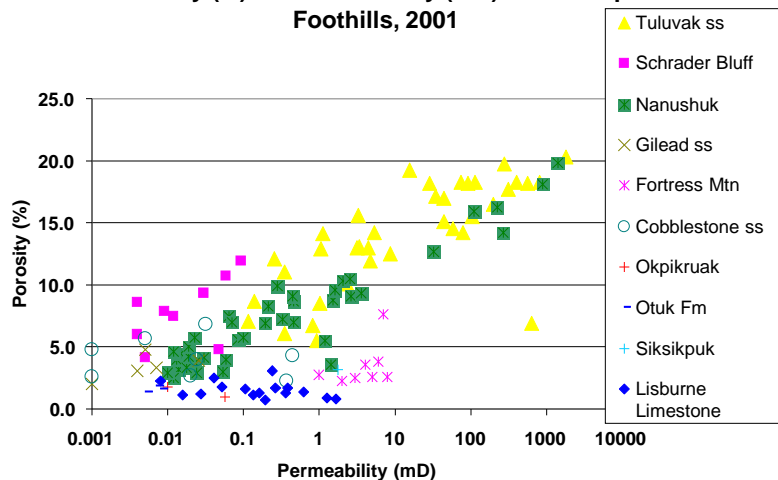
Geological Survey of Alaska

Topical Petroleum-related Studies

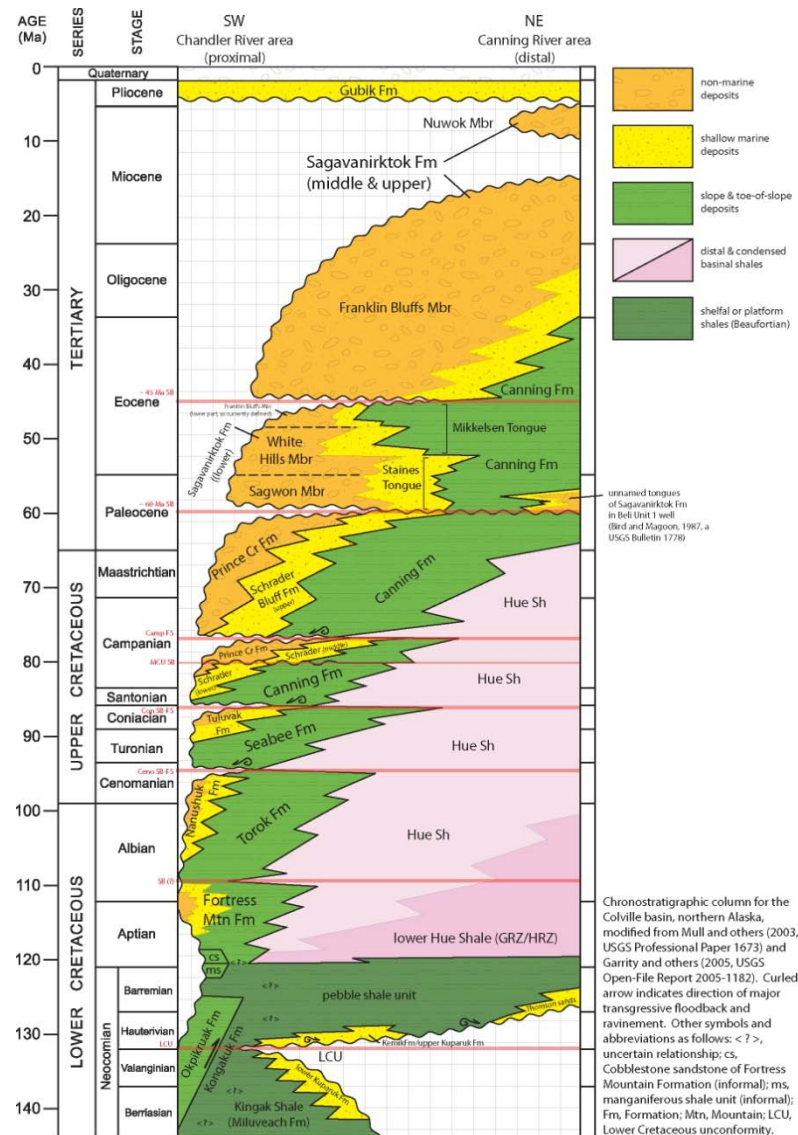
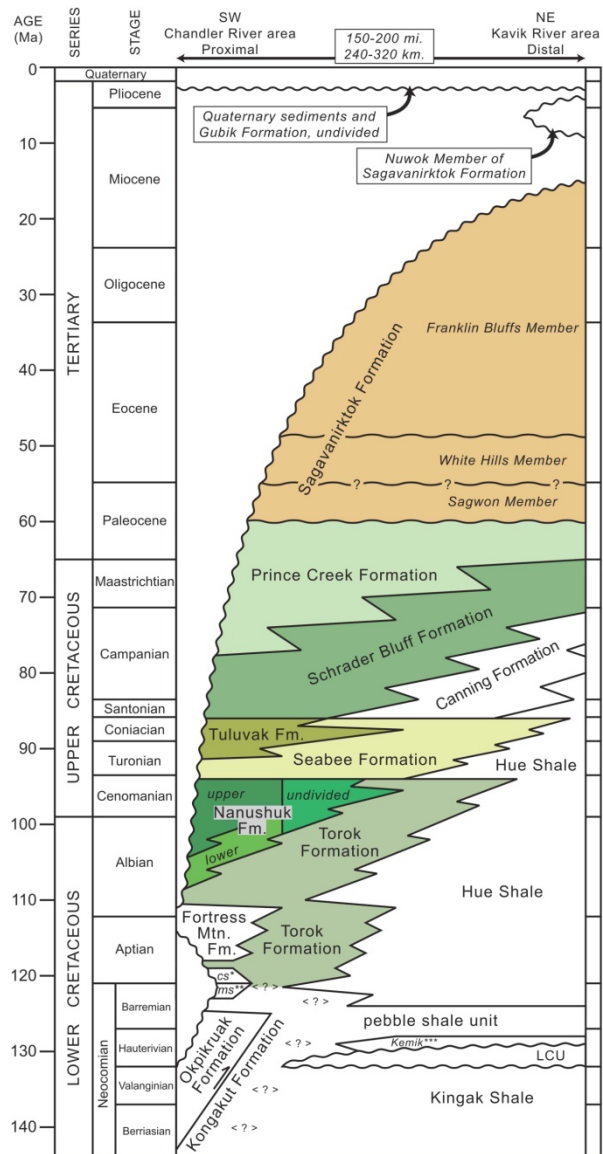


Killik Bend non-marine to deltaic succession, highstand aggradational system tract

Porosity (%) vs. Permeability (mD) North Slope Foothills, 2001

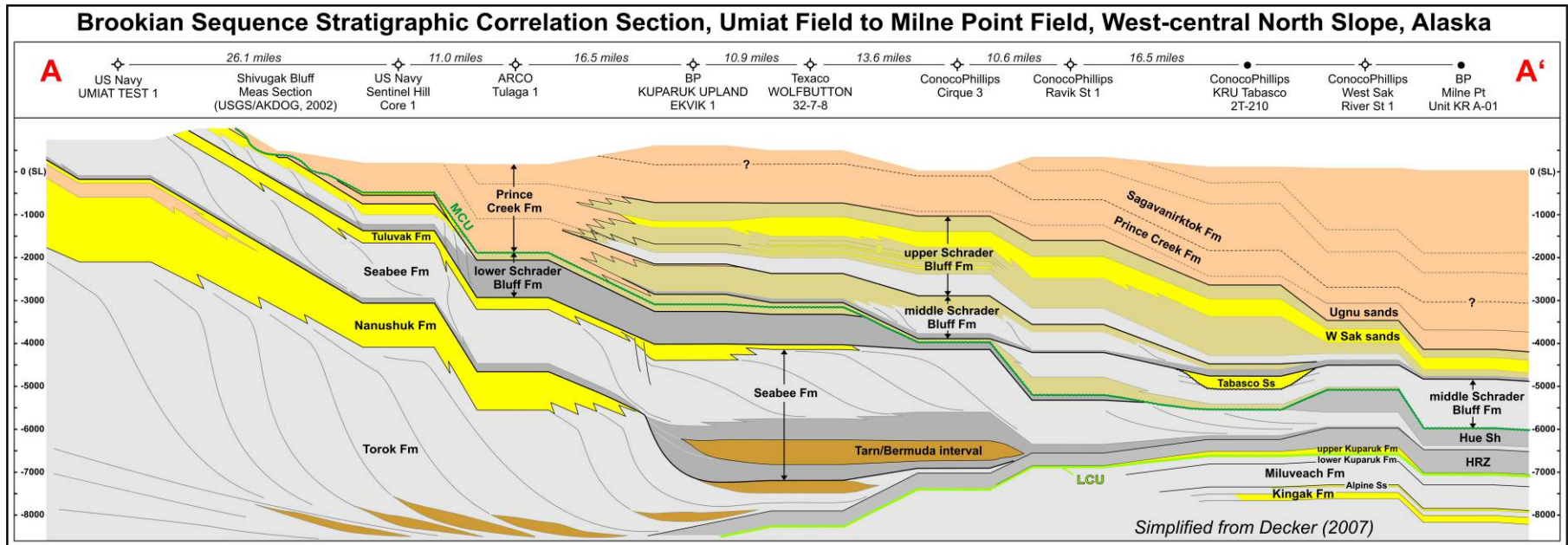
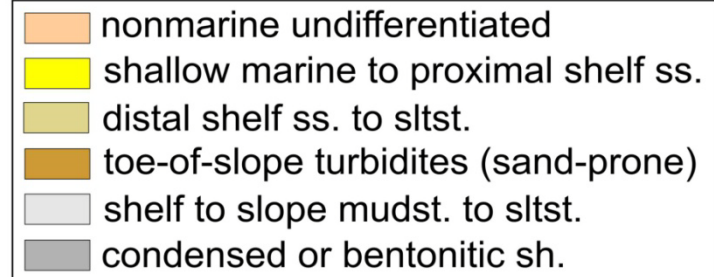
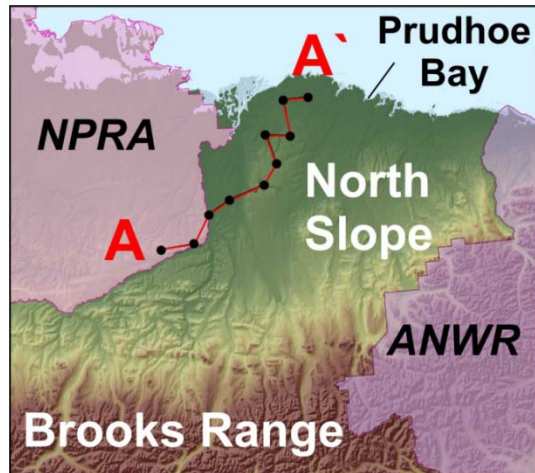


Revising and Codifying Stratigraphic Nomenclature



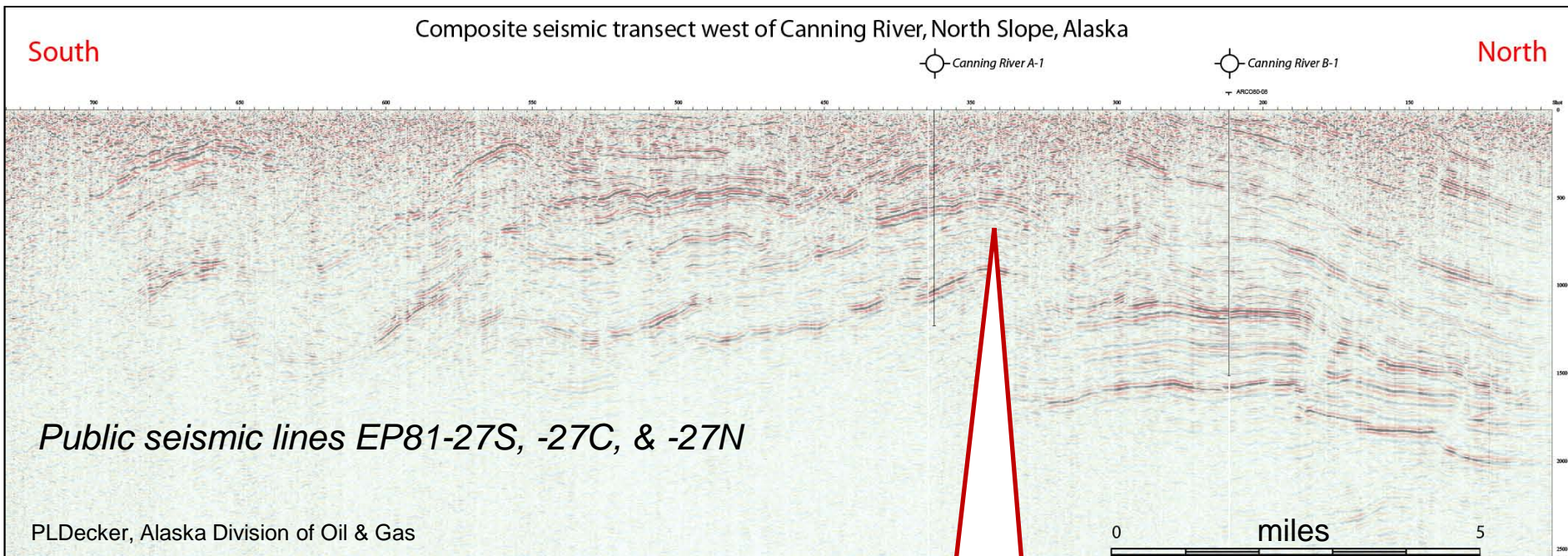
Red lines and text indicate key sequence stratigraphic surfaces, abbreviated as follows: SB, sequence boundary; FS, transgressive flooding and/or ravinement surface; Camp, Campanian; Ceno, Cenomanian; MCU, mid-Campanian unconformity.

Merging Surface and Subsurface Data



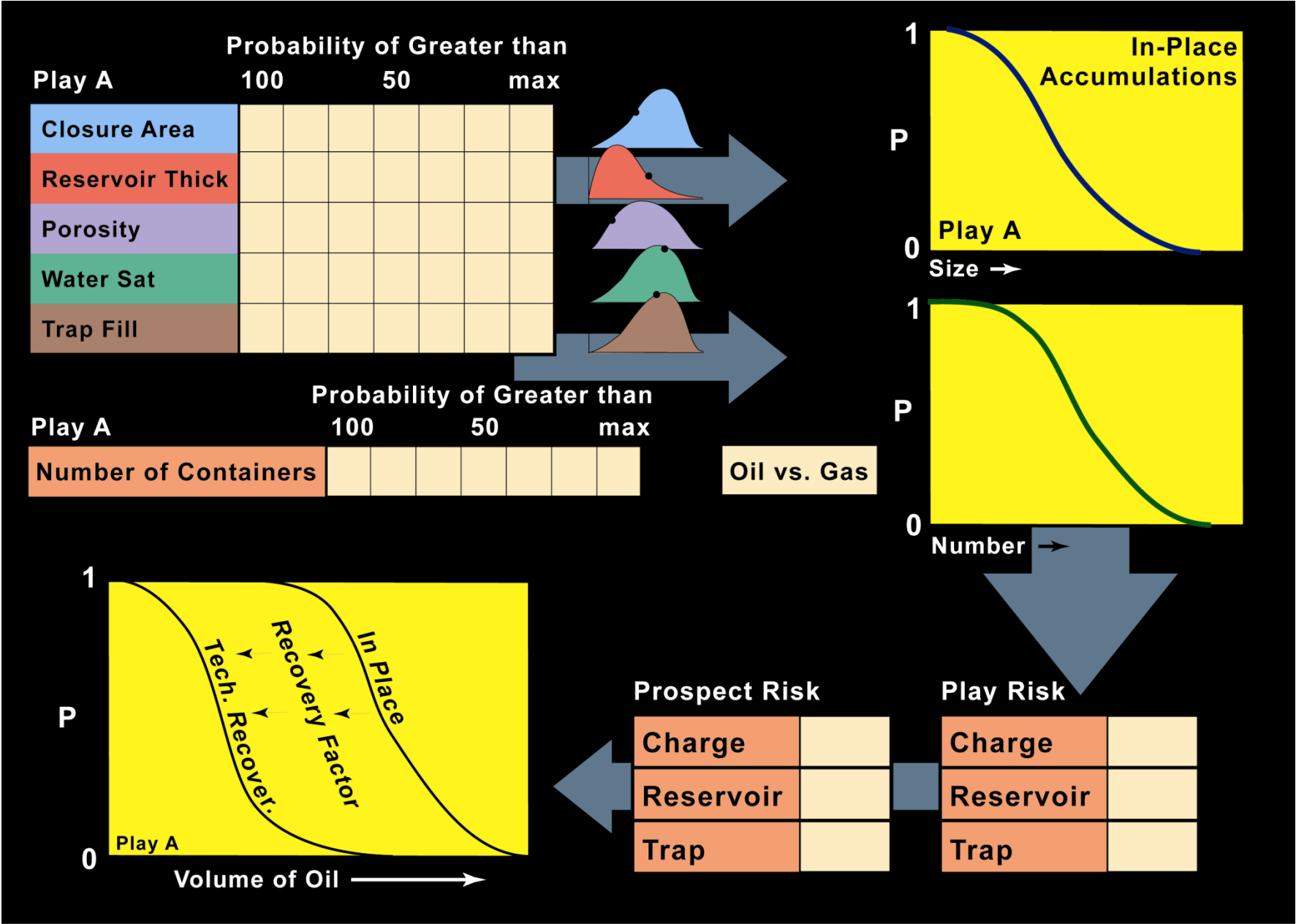
Foothills Structural Plays

Seismic Interpretation



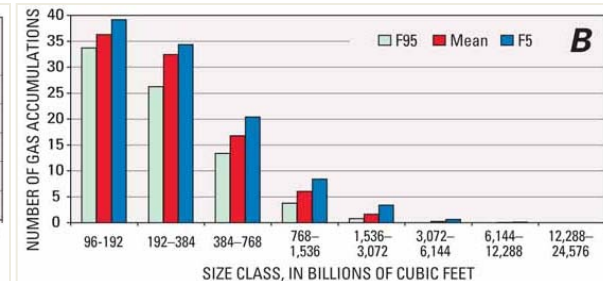
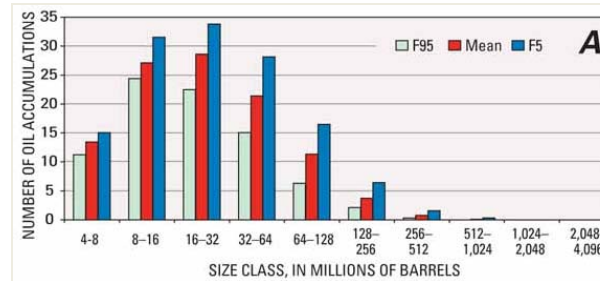
Kavik structure

USGS Assessment Methodology – Geologic Basis

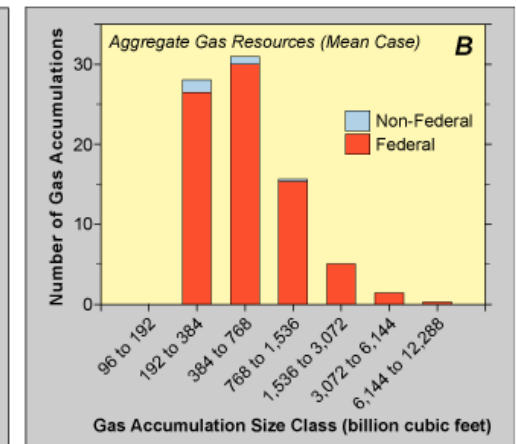
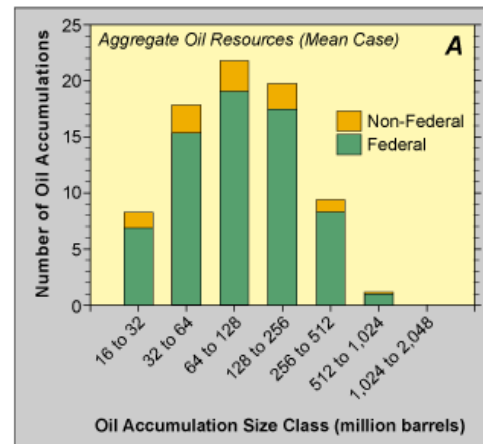


Undiscovered Mean Field Size Distributions - USGS

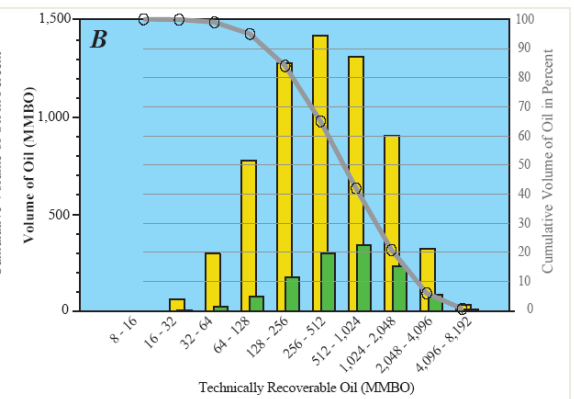
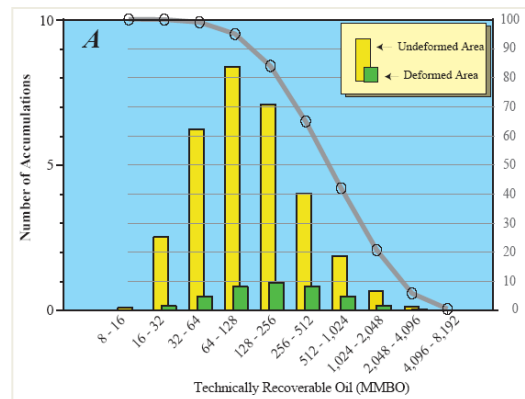
State Lands: ~1 undiscovered oil accumulation > 250 MMBO recoverable. ~ 2 undiscovered gas accumulations > 1.5 TCF recoverable.



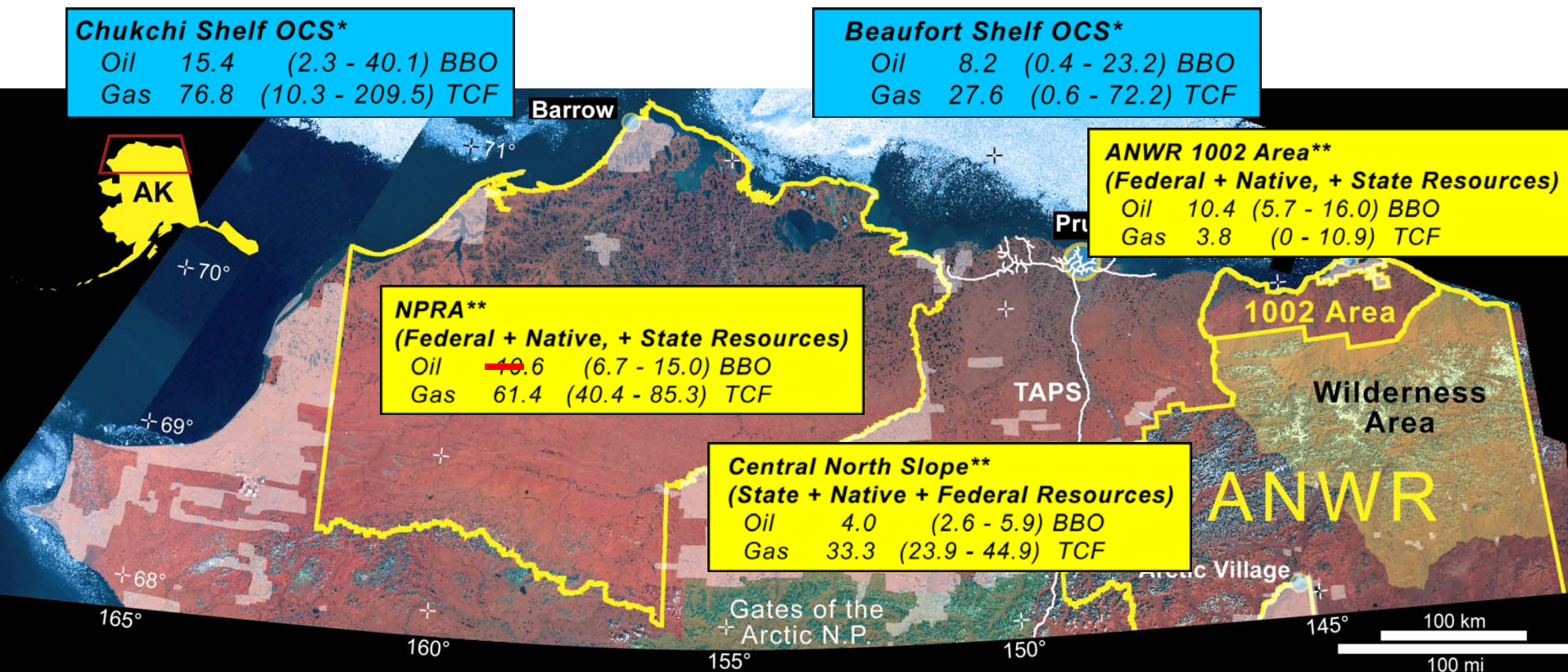
NPRA: ~11 undiscovered oil accumulations > 250 MMBO recoverable. ~7 undiscovered gas accumulations > 1.5 TCF recoverable.



ANWR 1002: ~9 undiscovered oil accumulations > 250 MMBO recoverable (~65% of estimated total recoverable oil volume); gas resource not shown.



USGS Potential for Undiscovered Petroleum in Arctic Alaska



* Oil includes crude oil + natural gas liquids
Gas includes nonassociated + associated gas

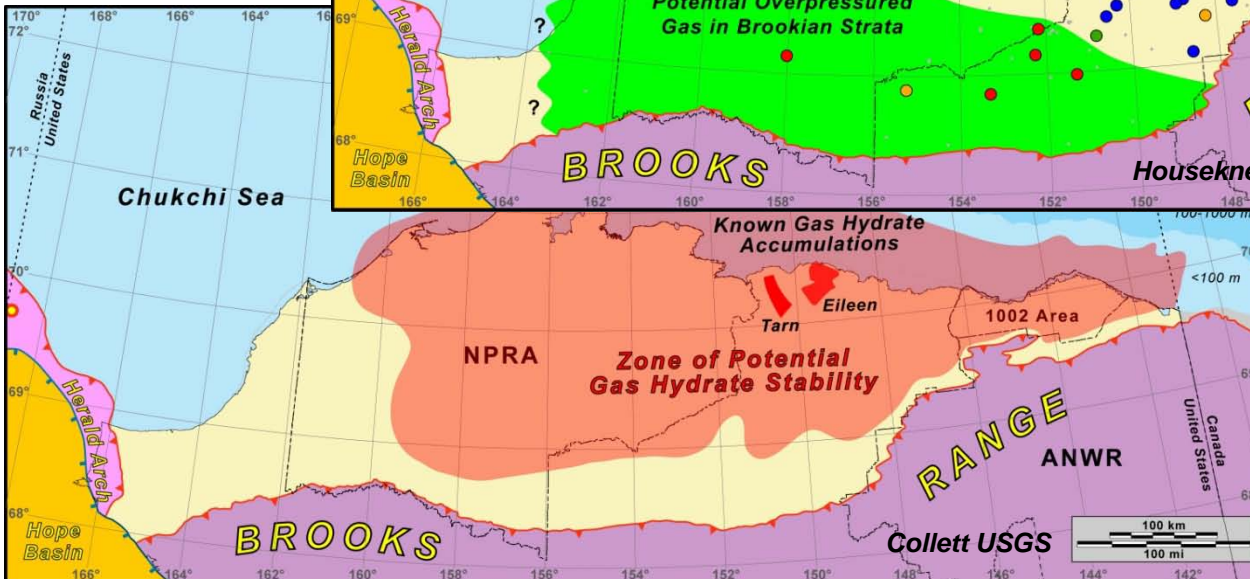
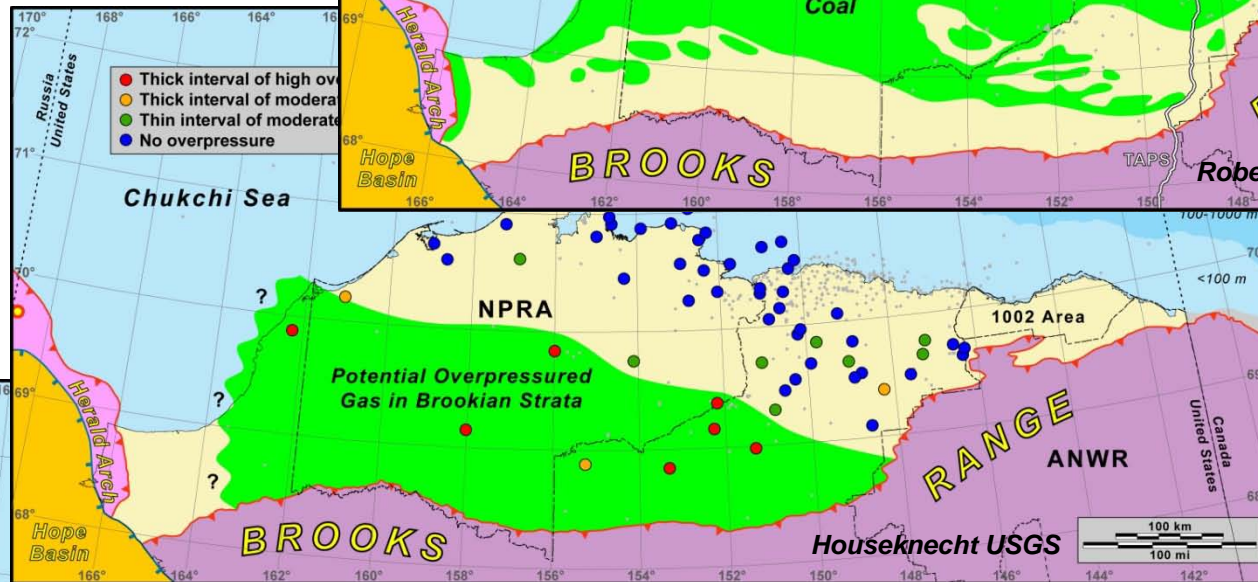
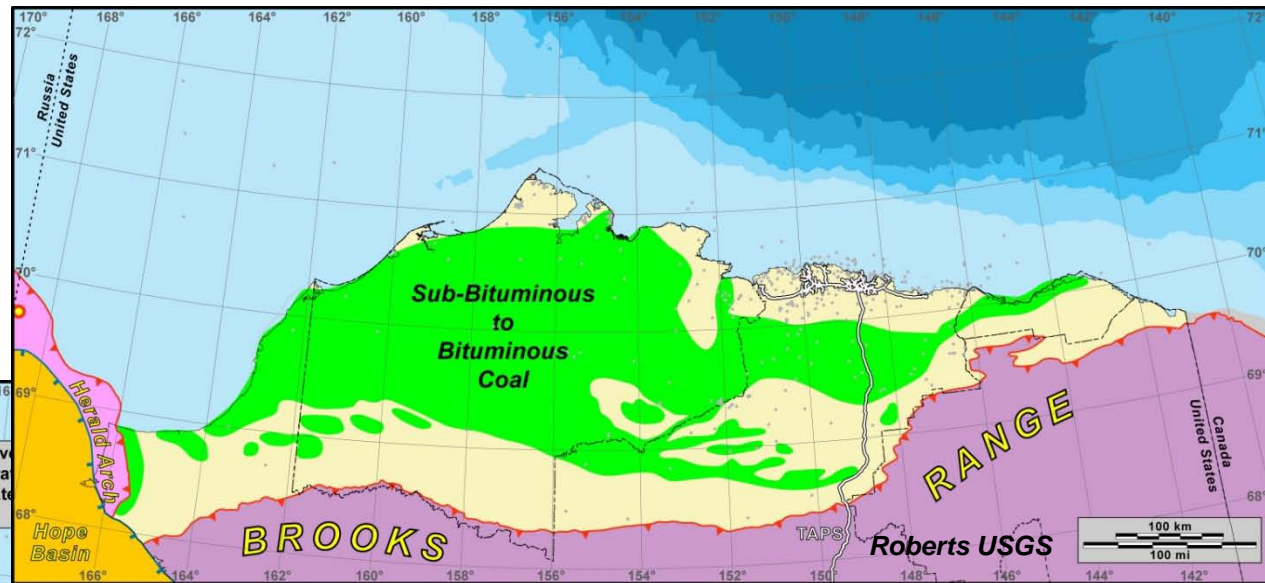
** Oil includes crude oil only
Gas includes nonassociated gas only

“Unconventional” Gas Resources (continuous resources)

**Coalbed
Gas**

**Overpressured,
Basin-centered Gas**

**Gas
Hydrates**



Evaluation in Progress