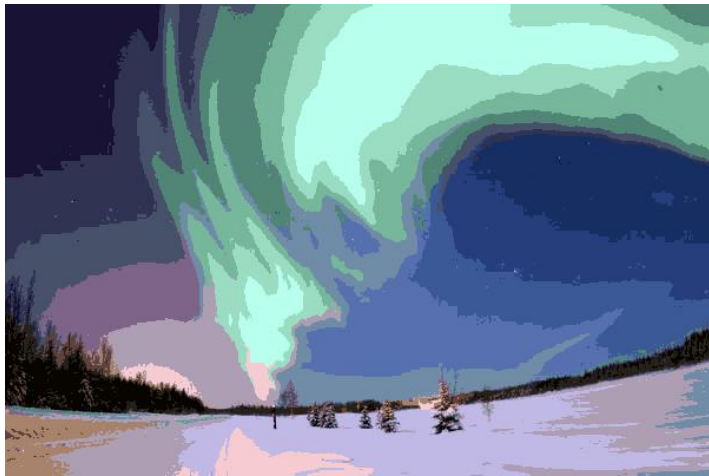
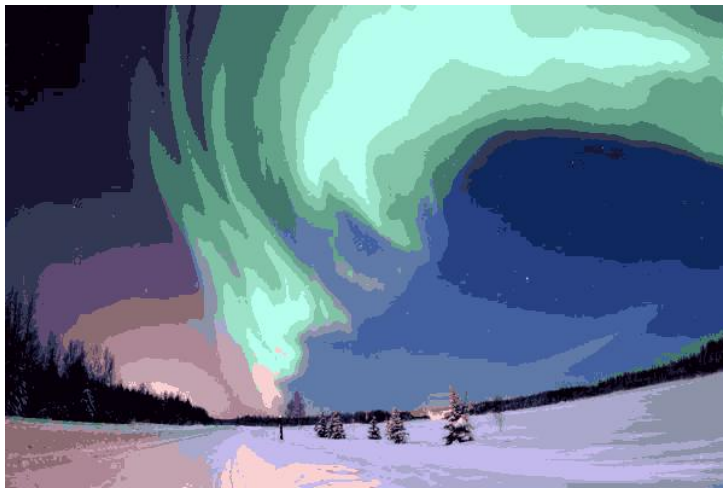


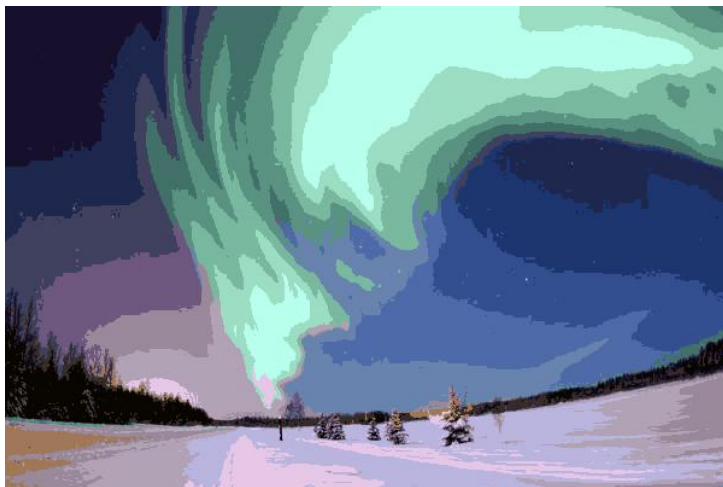
Report on Clustering with Different Start Points



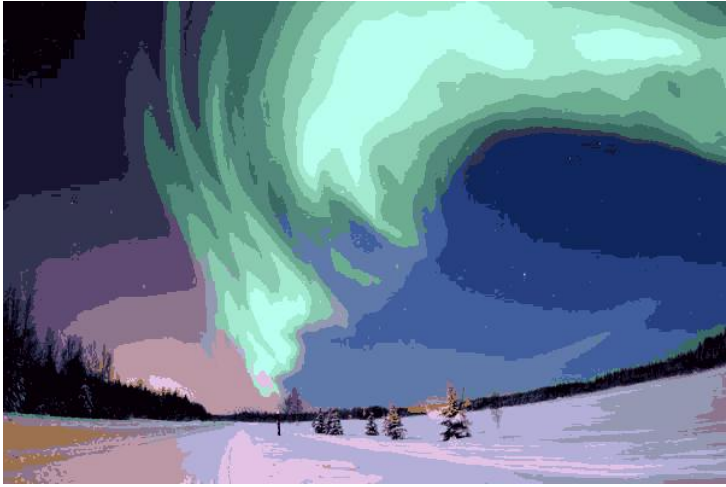
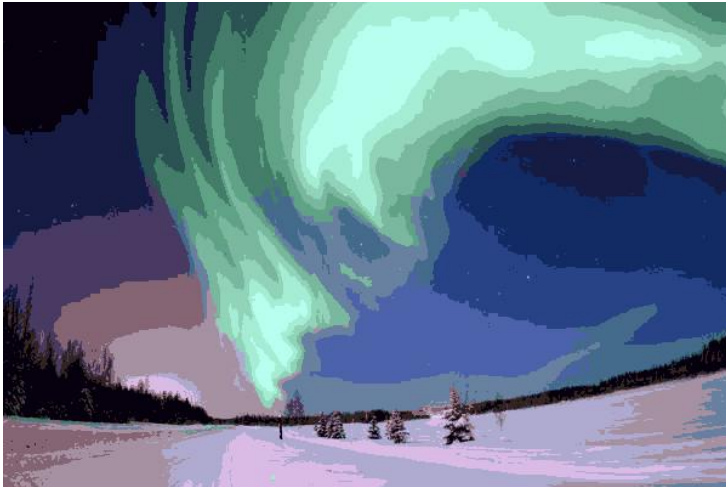
[26. 38. 98.]
 [164. 167. 200.]
 [149. 225. 195.]
 [14. 14. 4.]
 [31. 63. 110.]
 [39. 71. 128.]
 [82. 135. 115.]
 [72. 28. 25.]
 [141. 106. 146.]
 [214. 158. 187.]
 [60. 30. 32.]
 [129. 173. 156.]
 [85. 97. 169.]
 [53. 95. 85.]
 [30. 35. 54.]
 [162. 227. 207.]
 [32. 45. 100.]
 [13. 31. 7.]
 [85. 99. 170.]
 [171. 159. 163.]



[45. 64. 132.]
 [203. 194. 249.]
 [64. 53. 95.]
 [100. 127. 156.]
 [173. 142. 173.]
 [120. 127. 181.]
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 [178. 159. 214.]
 [63. 87. 161.]
 [93. 147. 124.]
 [178. 178. 214.]
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 [93. 117. 181.]
 [192. 183. 238.]
 [131. 133. 154.]
 [29. 43. 104.]
 [121. 95. 134.]
 [126. 110. 147.]
 [156. 154. 191.]



[98. 79. 125.]
 [114. 104. 92.]
 [55. 74. 140.]
 [58. 76. 124.]
 [100. 139. 154.]
 [74. 120. 143.]
 [41. 49. 72.]
 [26. 19. 50.]
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 [177. 248. 232.]
 [109. 164. 145.]
 [99. 165. 129.]
 [96. 116. 166.]
 [68. 57. 99.]
 [163. 125. 116.]

	[26. 27. 48.] [111. 117. 167.] [145. 109. 147.] [158. 118. 153.] [109. 115. 177.] [68. 123. 100.] [178. 143. 139.] [57. 102. 133.] [33. 44. 106.] [179. 156. 164.] [186. 249. 241.] [84. 115. 118.] [174. 236. 225.] [90. 78. 116.] [42. 64. 77.] [186. 139. 173.] [172. 139. 130.] [100. 82. 122.] [140. 220. 181.] [100. 121. 174.]
	[172. 175. 208.] [74. 75. 79.] [104. 171. 136.] [76. 96. 167.] [69. 89. 160.] [130. 181. 176.] [94. 132. 141.] [150. 223. 193.] [99. 93. 127.] [79. 93. 168.] [198. 188. 240.] [87. 70. 114.] [50. 62. 84.] [50. 75. 82.] [179. 243. 229.] [162. 234. 214.] [62. 104. 144.] [35. 48. 100.] [90. 119. 153.] [133. 139. 155.]

Analysis:

Since the EM algorithm is stochastic, the starting values for centers can affect when the algorithm reaches convergence. This is because in every step, the previous value of the center for each cluster is used to compute the new value and thus which clusters the points get grouped in initially can change the final outcome.

This is observable above when there are differences in pixels being assigned to clusters if you compare two images side by side.