

**Oceanographic Data of the 55th Japanese Antarctic Research Expedition**  
**from December 2013 to March 2014**

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The results of tidal observations at Syowa Station, Antarctic are presented in this report.

The tidal observations were carried out by the winter party of JARE-54 from February 2013 to January 2014.

**Tidal observations**

(1) Tidal observations at Syowa Station

Tidal observations have been ongoing at Syowa Station since 1965. The tide gauge (QWP-8-303D, Meisei Denki Co.) was installed on the sea bottom, at a depth of about 15 m, in Nishi-no-ura Cove, East Ongul Island. The results obtained from February 2013 to January 2014 are

described in this report. The methodology of tidal observations followed Odamaki *et al.* (1991). In this system, the relative water pressure compensated for atmospheric pressure is measured with a quartz oscillator. The range of the sensor is 0–50 m, and its precision is 0.01 m. The data were sampled once every 2 s, averaged over 30 s, and recorded on a hard disk of a recording PC. The gauge was maintained by a member of the winter party of JARE-54 throughout the year. Hourly sea level data were recorded, and daily and monthly mean sea levels were calculated from the hourly data. The results are presented in [Table 1](#). The least squares method was employed to the harmonic analysis for 369 days. The harmonic constants, characteristics of the tide, and other relevant details are shown in [Table 2](#).

*The zero level of the tide gauge:*

Every summer, the zero level of the tide gauge is routinely checked. In February 1, 2001, the level of 500 cm below Bench Mark No.1040 was adopted as the reference (zero level) of the tide levels.

(2) Tidal Observations at Skallen

Tidal observations at Skallen in south 80 km of Syowa Station were carried out continuously for 18 days (from January 14 to January 31, 2013) with a pressure gauge (AWH-USB-Z, JFE Advantech Co., Ltd.). The sensor was placed on the sea bottom about 3.1 m below the sea surface. Pressure was measured with a semiconductor. The range of the measurement is 0–25 m and its accuracy is  $\pm 3.5$  cm. The 10-s sampling average pressure was recorded in

a mini SD Card every 5 min. The data were corrected for atmospheric pressure. Daily mean sea levels were calculated by averaging the hourly level values. In addition, the mean sea level at Skallen was calculated by comparing the mean sea level based on 5-year average data at Syowa Station and the mean sea level based on the data acquired during the observation period. The results are given in [Table 3](#) and [Fig. 1](#). The least squares method was employed in the harmonic analysis. Harmonic constants for 15 days, characteristics of the tide, and other relevant details are given in [Table 4](#).

### **Acknowledgments**

The author would like to express his sincere thanks to all members of JARE-55 and JARE-54 for their helpful support and valuable advice. The author also sincerely thanks Mr. Noriaki Obara, a member of the JARE-54 winter party, who maintained the tide gauge throughout the year.

### **Reference**

Odamaki, M., Michida, Y., Noguchi, I., Iwanaga, Y., Ikeda, S. and Iwamoto, K. (1991): Mean sea-level observed at Syowa Station, East Antarctica. Proc. NIPR Symp. Antarct. Geosci., **5**, 20-28.

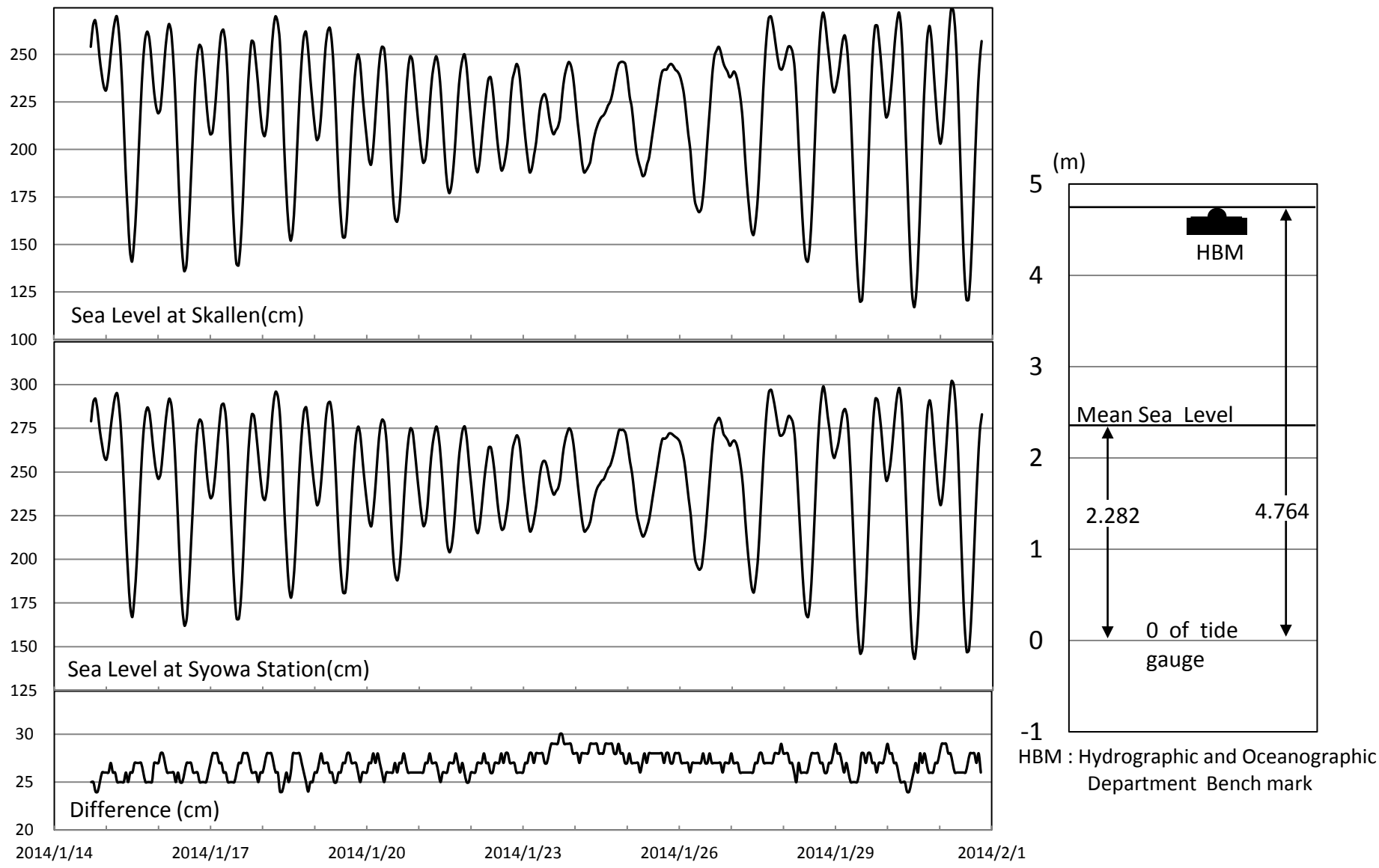


Fig. 1. Sea levels at Skallen and Syowa Station (time is LMT (UT+3 hours)), relative height and sea level at Skallen.

Table 1. Hourly tidal observations at Syowa Station from February 2013 to January 2014

Station : Syowa Station  
 Latitude : 69° 00' 28" N  
 Longitude : 39° 34' 13" E  
 Duration : Feb. 1–Feb. 28, 2013  
 Unit : Centimeter

The zero of the tide gauge:  
 500 cm below Bench Mark No. 1040

| Date | Time |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |              | (24H) |      | (25H) |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------------|-------|------|-------|------|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
|      | 0    | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22           | 23    | Sum  | Mean  | Sum  | Mean |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1    | 233  | 217 | 206 | 207 | 218 | 235 | 251 | 264 | 271 | 270 | 263 | 249 | 233 | 221 | 215 | 216 | 226 | 241 | 256 | 267 | 274 | 274 | 264          | 248   | 5819 | 242   | 6052 | 242  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2    | 233  | 218 | 205 | 200 | 204 | 216 | 230 | 243 | 255 | 259 | 260 | 256 | 247 | 241 | 238 | 240 | 245 | 254 | 268 | 279 | 284 | 284 | 280          | 269   | 5908 | 246   | 6163 | 247  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3    | 255  | 240 | 227 | 216 | 212 | 217 | 223 | 231 | 241 | 248 | 255 | 257 | 256 | 257 | 257 | 259 | 263 | 267 | 274 | 280 | 285 | 286 | 282          | 275   | 6063 | 253   | 6328 | 253  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4    | 265  | 252 | 241 | 228 | 217 | 213 | 212 | 213 | 218 | 224 | 230 | 241 | 248 | 255 | 264 | 271 | 275 | 279 | 284 | 285 | 287 | 287 | 284          | 280   | 6053 | 252   | 6328 | 253  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5    | 275  | 267 | 257 | 246 | 235 | 225 | 214 | 207 | 205 | 205 | 212 | 223 | 235 | 251 | 266 | 281 | 291 | 294 | 296 | 297 | 295 | 291 | 288          | 286   | 6142 | 256   | 6427 | 257  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6    | 285  | 285 | 279 | 271 | 262 | 249 | 231 | 214 | 200 | 191 | 190 | 197 | 210 | 231 | 254 | 275 | 294 | 301 | 302 | 300 | 294 | 286 | 281          | 279   | 6161 | 257   | 6442 | 258  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7    | 281  | 285 | 287 | 286 | 281 | 270 | 251 | 227 | 205 | 188 | 177 | 175 | 186 | 205 | 230 | 259 | 281 | 295 | 301 | 297 | 287 | 276 | 266          | 263   | 6059 | 252   | 6326 | 253  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8    | 267  | 273 | 282 | 290 | 292 | 288 | 272 | 246 | 217 | 191 | 171 | 162 | 166 | 184 | 211 | 241 | 269 | 287 | 297 | 294 | 284 | 269 | 256          | 249   | 5958 | 248   | 6210 | 248  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9    | 252  | 262 | 276 | 290 | 300 | 305 | 296 | 274 | 245 | 213 | 185 | 168 | 163 | 175 | 199 | 230 | 261 | 284 | 299 | 300 | 289 | 273 | 256          | 243   | 6038 | 252   | 6279 | 251  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10   | 241  | 251 | 269 | 286 | 303 | 315 | 314 | 298 | 271 | 238 | 206 | 179 | 166 | 169 | 186 | 213 | 243 | 266 | 282 | 287 | 278 | 261 | 241          | 222   | 5985 | 249   | 6198 | 248  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11   | 213  | 217 | 233 | 255 | 278 | 298 | 307 | 302 | 285 | 257 | 227 | 201 | 183 | 180 | 195 | 219 | 247 | 275 | 295 | 303 | 300 | 283 | 262          | 242   | 6057 | 252   | 6284 | 251  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12   | 227  | 225 | 236 | 258 | 283 | 308 | 324 | 325 | 316 | 295 | 268 | 240 | 218 | 208 | 211 | 228 | 253 | 275 | 292 | 301 | 296 | 279 | 257          | 234   | 6357 | 265   | 6572 | 263  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13   | 215  | 204 | 206 | 223 | 247 | 271 | 287 | 294 | 293 | 280 | 257 | 234 | 213 | 199 | 199 | 211 | 233 | 254 | 272 | 283 | 283 | 272 | 252          | 231   | 5913 | 246   | 6126 | 245  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14   | 213  | 198 | 193 | 203 | 223 | 247 | 266 | 279 | 284 | 280 | 266 | 249 | 234 | 222 | 217 | 225 | 243 | 261 | 276 | 288 | 291 | 282 | 267          | 246   | 5953 | 248   | 6180 | 247  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15   | 227  | 212 | 202 | 202 | 216 | 237 | 255 | 269 | 279 | 279 | 273 | 264 | 255 | 250 | 248 | 253 | 266 | 281 | 296 | 310 | 311 | 307 | 297          | 278   | 6267 | 261   | 6528 | 261  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16   | 261  | 247 | 235 | 231 | 235 | 248 | 261 | 270 | 278 | 282 | 281 | 275 | 266 | 264 | 263 | 265 | 274 | 283 | 293 | 303 | 305 | 301 | 292          | 278   | 6491 | 270   | 6752 | 270  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17   | 261  | 248 | 238 | 229 | 227 | 235 | 241 | 247 | 254 | 258 | 259 | 259 | 257 | 257 | 262 | 267 | 273 | 280 | 289 | 295 | 298 | 295 | 288          | 279   | 6296 | 262   | 6563 | 263  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18   | 267  | 254 | 246 | 238 | 233 | 234 | 235 | 235 | 239 | 242 | 243 | 245 | 249 | 252 | 258 | 268 | 275 | 279 | 285 | 288 | 288 | 284 | 278          | 271   | 6186 | 258   | 6449 | 258  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 19   | 263  | 252 | 245 | 238 | 231 | 228 | 223 | 217 | 216 | 216 | 216 | 221 | 229 | 237 | 248 | 261 | 272 | 278 | 283 | 285 | 282 | 279 | 276          | 271   | 5967 | 249   | 6235 | 249  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20   | 268  | 266 | 263 | 259 | 255 | 248 | 239 | 231 | 224 | 218 | 219 | 223 | 233 | 248 | 263 | 279 | 295 | 302 | 305 | 307 | 303 | 297 | 294          | 291   | 6330 | 264   | 6622 | 265  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 21   | 292  | 293 | 292 | 292 | 289 | 281 | 269 | 253 | 238 | 227 | 221 | 222 | 230 | 243 | 261 | 280 | 296 | 306 | 307 | 304 | 297 | 288 | 280          | 276   | 6537 | 272   | 6814 | 273  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 22   | 277  | 283 | 287 | 289 | 290 | 285 | 272 | 252 | 233 | 216 | 205 | 204 | 209 | 224 | 245 | 267 | 286 | 296 | 301 | 298 | 285 | 274 | 264          | 258   | 6300 | 263   | 6559 | 262  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 23   | 259  | 266 | 275 | 284 | 289 | 288 | 276 | 256 | 233 | 210 | 193 | 185 | 188 | 202 | 225 | 251 | 273 | 288 | 294 | 293 | 280 | 264 | 253          | 244   | 6069 | 253   | 6314 | 253  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 24   | 245  | 254 | 268 | 282 | 294 | 299 | 291 | 272 | 247 | 221 | 199 | 185 | 183 | 195 | 218 | 244 | 270 | 288 | 296 | 295 | 283 | 265 | 249          | 238   | 6081 | 253   | 6317 | 253  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 25   | 236  | 245 | 262 | 281 | 299 | 311 | 309 | 294 | 271 | 241 | 214 | 196 | 187 | 192 | 213 | 239 | 263 | 283 | 294 | 292 | 279 | 260 | 240          | 224   | 6125 | 255   | 6342 | 254  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 26   | 217  | 222 | 237 | 260 | 284 | 299 | 304 | 298 | 277 | 250 | 224 | 199 | 185 | 187 | 202 | 225 | 251 | 273 | 285 | 288 | 278 | 256 | 234          | 216   | 5951 | 248   | 6154 | 246  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 27   | 203  | 202 | 216 | 240 | 266 | 288 | 301 | 302 | 290 | 268 | 241 | 215 | 197 | 192 | 200 | 222 | 248 | 269 | 284 | 290 | 282 | 264 | 241          | 218   | 5939 | 247   | 6139 | 246  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 28   | 200  | 196 | 204 | 224 | 253 | 279 | 298 | 308 | 306 | 291 | 269 | 246 | 229 | 219 | 223 | 239 | 262 | 285 | 301 | 308 | 304 | 288 | 265          | 241   | 6238 | 260   | 6458 | 258  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1    | 220  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |              |       |      |       |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Monthly Mean | 254.8 | cm   |       |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Table 1. (Continued)

Station : Syowa Station  
 Latitude : 69° 00' 28" N  
 Longitude : 39° 34' 13" E  
 Duration : Mar. 1–Mar. 31, 2013  
 Unit : Centimeter

The zero of the tide gauge:  
 500 cm below Bench Mark No. 1040

| Date | Time |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |              | (24H) |      | (25H) |      |      |  |
|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------------|-------|------|-------|------|------|--|
|      | 0    | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22           | 23    | Sum  | Mean  | Sum  | Mean |  |
| 1    | 220  | 208 | 208 | 222 | 246 | 272 | 294 | 309 | 314 | 307 | 291 | 272 | 254 | 241 | 240 | 250 | 268 | 288 | 304 | 313 | 312 | 299 | 277          | 252   | 6461 | 269   | 6689 | 268  |  |
| 2    | 228  | 211 | 204 | 208 | 225 | 248 | 268 | 284 | 294 | 297 | 290 | 275 | 263 | 253 | 247 | 252 | 265 | 280 | 293 | 304 | 305 | 294 | 278          | 256   | 6322 | 263   | 6555 | 262  |  |
| 3    | 233  | 214 | 202 | 199 | 207 | 223 | 241 | 256 | 268 | 278 | 280 | 273 | 268 | 263 | 259 | 263 | 271 | 282 | 295 | 304 | 303 | 298 | 287          | 269   | 6236 | 260   | 6486 | 259  |  |
| 4    | 250  | 232 | 216 | 209 | 207 | 212 | 224 | 235 | 246 | 256 | 264 | 266 | 267 | 269 | 271 | 273 | 278 | 285 | 292 | 299 | 300 | 296 | 290          | 279   | 6216 | 259   | 6480 | 259  |  |
| 5    | 264  | 250 | 238 | 225 | 219 | 216 | 217 | 220 | 226 | 233 | 241 | 249 | 256 | 265 | 274 | 281 | 286 | 290 | 294 | 297 | 296 | 292 | 288          | 282   | 6199 | 258   | 6473 | 259  |  |
| 6    | 274  | 265 | 257 | 247 | 236 | 227 | 219 | 213 | 211 | 212 | 219 | 229 | 242 | 257 | 273 | 286 | 295 | 297 | 297 | 296 | 293 | 288 | 285          | 283   | 6201 | 258   | 6483 | 259  |  |
| 7    | 282  | 280 | 278 | 275 | 267 | 255 | 240 | 226 | 215 | 209 | 207 | 213 | 226 | 245 | 266 | 284 | 297 | 303 | 301 | 296 | 289 | 280 | 275          | 275   | 6284 | 262   | 6561 | 262  |  |
| 8    | 277  | 282 | 288 | 289 | 288 | 280 | 261 | 239 | 220 | 203 | 194 | 195 | 203 | 220 | 245 | 267 | 284 | 293 | 292 | 283 | 271 | 258 | 247          | 245   | 6124 | 255   | 6373 | 255  |  |
| 9    | 249  | 259 | 271 | 282 | 288 | 284 | 270 | 249 | 222 | 198 | 183 | 177 | 183 | 201 | 227 | 254 | 276 | 291 | 294 | 287 | 273 | 256 | 243          | 240   | 5957 | 248   | 6203 | 248  |  |
| 10   | 246  | 260 | 278 | 297 | 313 | 317 | 311 | 294 | 266 | 239 | 218 | 203 | 203 | 218 | 240 | 265 | 288 | 304 | 309 | 301 | 282 | 260 | 240          | 229   | 6381 | 266   | 6609 | 264  |  |
| 11   | 228  | 242 | 263 | 285 | 306 | 319 | 319 | 306 | 282 | 254 | 227 | 207 | 199 | 207 | 226 | 252 | 274 | 292 | 300 | 294 | 276 | 254 | 230          | 212   | 6254 | 261   | 6459 | 258  |  |
| 12   | 205  | 215 | 237 | 263 | 288 | 308 | 316 | 312 | 295 | 269 | 242 | 219 | 207 | 208 | 224 | 249 | 271 | 290 | 301 | 299 | 282 | 259 | 233          | 211   | 6203 | 258   | 6402 | 256  |  |
| 13   | 199  | 202 | 219 | 245 | 275 | 299 | 315 | 318 | 309 | 291 | 268 | 245 | 230 | 226 | 237 | 258 | 281 | 300 | 313 | 315 | 303 | 281 | 254          | 231   | 6414 | 267   | 6628 | 265  |  |
| 14   | 214  | 210 | 220 | 241 | 269 | 296 | 314 | 322 | 320 | 306 | 284 | 265 | 248 | 240 | 244 | 260 | 281 | 299 | 310 | 312 | 303 | 283 | 257          | 231   | 6529 | 272   | 6740 | 270  |  |
| 15   | 211  | 198 | 200 | 216 | 239 | 265 | 286 | 298 | 300 | 296 | 282 | 265 | 254 | 246 | 246 | 259 | 278 | 296 | 309 | 315 | 309 | 295 | 273          | 249   | 6385 | 266   | 6614 | 265  |  |
| 16   | 229  | 215 | 211 | 220 | 241 | 263 | 283 | 298 | 305 | 306 | 299 | 287 | 278 | 273 | 272 | 280 | 295 | 309 | 319 | 326 | 321 | 309 | 289          | 266   | 6694 | 279   | 6937 | 277  |  |
| 17   | 243  | 229 | 219 | 219 | 231 | 247 | 262 | 275 | 282 | 286 | 284 | 276 | 270 | 267 | 267 | 273 | 283 | 294 | 305 | 310 | 308 | 300 | 284          | 265   | 6479 | 270   | 6725 | 269  |  |
| 18   | 246  | 232 | 223 | 220 | 225 | 235 | 246 | 258 | 265 | 270 | 272 | 269 | 267 | 269 | 272 | 278 | 286 | 295 | 305 | 310 | 309 | 303 | 292          | 279   | 6426 | 268   | 6691 | 268  |  |
| 19   | 265  | 252 | 243 | 238 | 239 | 242 | 248 | 254 | 259 | 264 | 268 | 269 | 270 | 274 | 281 | 289 | 296 | 302 | 308 | 311 | 311 | 307 | 298          | 290   | 6578 | 274   | 6858 | 274  |  |
| 20   | 280  | 272 | 265 | 260 | 258 | 256 | 257 | 258 | 259 | 264 | 268 | 271 | 278 | 285 | 292 | 303 | 309 | 312 | 315 | 314 | 311 | 306 | 298          | 293   | 6784 | 283   | 7071 | 283  |  |
| 21   | 287  | 280 | 276 | 272 | 267 | 262 | 256 | 249 | 244 | 243 | 244 | 248 | 257 | 266 | 277 | 290 | 298 | 300 | 302 | 299 | 292 | 286 | 281          | 277   | 6553 | 273   | 6830 | 273  |  |
| 22   | 277  | 278 | 278 | 278 | 276 | 269 | 260 | 250 | 239 | 233 | 234 | 238 | 247 | 261 | 277 | 291 | 301 | 306 | 305 | 298 | 288 | 279 | 272          | 269   | 6504 | 271   | 6776 | 271  |  |
| 23   | 272  | 279 | 284 | 288 | 290 | 285 | 272 | 257 | 241 | 229 | 226 | 227 | 235 | 252 | 271 | 289 | 302 | 309 | 308 | 301 | 289 | 278 | 269          | 268   | 6521 | 272   | 6796 | 272  |  |
| 24   | 275  | 287 | 301 | 313 | 321 | 322 | 311 | 294 | 275 | 258 | 248 | 246 | 253 | 269 | 290 | 310 | 325 | 332 | 330 | 318 | 302 | 284 | 268          | 264   | 6996 | 292   | 7261 | 290  |  |
| 25   | 265  | 274 | 292 | 306 | 315 | 318 | 309 | 289 | 264 | 241 | 224 | 214 | 216 | 230 | 249 | 272 | 291 | 298 | 299 | 289 | 269 | 246 | 230          | 220   | 6420 | 268   | 6640 | 266  |  |
| 26   | 220  | 235 | 257 | 280 | 299 | 312 | 311 | 297 | 277 | 251 | 230 | 217 | 216 | 228 | 250 | 276 | 298 | 311 | 316 | 307 | 286 | 261 | 239          | 223   | 6397 | 267   | 6617 | 265  |  |
| 27   | 220  | 232 | 255 | 281 | 306 | 325 | 332 | 324 | 304 | 278 | 254 | 234 | 225 | 231 | 248 | 271 | 292 | 305 | 312 | 304 | 282 | 255 | 228          | 207   | 6505 | 271   | 6704 | 268  |  |
| 28   | 199  | 205 | 226 | 255 | 286 | 312 | 328 | 330 | 317 | 297 | 272 | 248 | 236 | 235 | 245 | 266 | 287 | 302 | 310 | 305 | 288 | 261 | 231          | 207   | 6448 | 269   | 6639 | 266  |  |
| 29   | 191  | 188 | 203 | 229 | 260 | 290 | 311 | 322 | 321 | 307 | 286 | 266 | 249 | 243 | 251 | 267 | 286 | 304 | 312 | 311 | 298 | 271 | 240          | 212   | 6418 | 267   | 6604 | 264  |  |
| 30   | 186  | 176 | 183 | 201 | 230 | 261 | 285 | 303 | 311 | 306 | 295 | 280 | 266 | 259 | 263 | 278 | 296 | 312 | 324 | 326 | 320 | 301 | 271          | 243   | 6476 | 270   | 6695 | 268  |  |
| 31   | 219  | 200 | 197 | 207 | 226 | 251 | 276 | 295 | 305 | 309 | 304 | 292 | 282 | 274 | 270 | 277 | 287 | 300 | 311 | 314 | 308 | 294 | 269          | 242   | 6509 | 271   | 6726 | 269  |  |
| 1    | 217  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |              |       |      |       |      |      |  |
|      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Monthly Mean | 267.3 | cm   |       |      |      |  |

Table 1. (Continued)

Station : Syowa Station  
 Latitude : 69° 00' 28" N  
 Longitude : 39° 34' 13" E  
 Duration : Apr. 1–Apr. 30, 2013  
 Unit : Centimeter

The zero of the tide gauge:  
 500 cm below Bench Mark No. 1040

| Date | Time |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |              | (24H) |      | (25H) |      |      |  |
|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------------|-------|------|-------|------|------|--|
|      | 0    | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22           | 23    | Sum  | Mean  | Sum  | Mean |  |
| 1    | 217  | 195 | 182 | 180 | 191 | 207 | 224 | 241 | 256 | 267 | 272 | 268 | 265 | 263 | 262 | 267 | 277 | 289 | 302 | 307 | 306 | 298 | 284          | 266   | 6086 | 254   | 6334 | 253  |  |
| 2    | 248  | 231 | 218 | 210 | 211 | 220 | 231 | 245 | 258 | 270 | 278 | 282 | 284 | 287 | 290 | 293 | 296 | 303 | 310 | 314 | 314 | 310 | 300          | 290   | 6493 | 271   | 6769 | 271  |  |
| 3    | 276  | 262 | 251 | 239 | 231 | 232 | 233 | 237 | 245 | 254 | 263 | 272 | 280 | 290 | 298 | 302 | 305 | 308 | 309 | 311 | 311 | 306 | 302          | 298   | 6615 | 276   | 6905 | 276  |  |
| 4    | 290  | 282 | 276 | 267 | 256 | 247 | 238 | 232 | 230 | 233 | 240 | 249 | 260 | 273 | 285 | 292 | 295 | 292 | 289 | 285 | 280 | 275 | 273          | 273   | 6412 | 267   | 6686 | 267  |  |
| 5    | 274  | 275 | 275 | 274 | 267 | 255 | 243 | 231 | 220 | 215 | 218 | 225 | 237 | 253 | 268 | 279 | 285 | 283 | 277 | 268 | 258 | 250 | 246          | 248   | 6124 | 255   | 6378 | 255  |  |
| 6    | 254  | 263 | 271 | 276 | 276 | 269 | 254 | 236 | 220 | 208 | 203 | 208 | 219 | 235 | 254 | 271 | 279 | 280 | 274 | 260 | 245 | 235 | 228          | 230   | 5948 | 248   | 6187 | 247  |  |
| 7    | 239  | 253 | 271 | 285 | 293 | 292 | 281 | 261 | 241 | 225 | 215 | 212 | 221 | 237 | 256 | 275 | 288 | 290 | 284 | 270 | 250 | 231 | 222          | 220   | 6112 | 255   | 6339 | 254  |  |
| 8    | 227  | 247 | 268 | 287 | 303 | 311 | 304 | 288 | 267 | 246 | 232 | 226 | 230 | 244 | 264 | 282 | 297 | 304 | 298 | 283 | 261 | 237 | 219          | 213   | 6338 | 264   | 6555 | 262  |  |
| 9    | 217  | 236 | 260 | 284 | 307 | 319 | 320 | 309 | 290 | 268 | 249 | 237 | 234 | 246 | 265 | 283 | 298 | 308 | 306 | 292 | 269 | 243 | 220          | 207   | 6467 | 269   | 6674 | 267  |  |
| 10   | 207  | 222 | 246 | 274 | 302 | 322 | 330 | 328 | 314 | 294 | 275 | 261 | 254 | 262 | 280 | 294 | 310 | 321 | 320 | 310 | 288 | 259 | 233          | 212   | 6718 | 280   | 6922 | 277  |  |
| 11   | 204  | 213 | 233 | 260 | 289 | 312 | 326 | 330 | 322 | 304 | 289 | 273 | 263 | 266 | 279 | 298 | 315 | 327 | 331 | 324 | 305 | 276 | 249          | 227   | 6815 | 284   | 7027 | 281  |  |
| 12   | 212  | 213 | 229 | 254 | 281 | 306 | 324 | 331 | 329 | 317 | 301 | 286 | 276 | 273 | 282 | 297 | 314 | 327 | 331 | 326 | 309 | 283 | 254          | 228   | 6883 | 287   | 7092 | 284  |  |
| 13   | 209  | 203 | 208 | 228 | 255 | 279 | 299 | 310 | 312 | 305 | 294 | 281 | 270 | 267 | 271 | 283 | 299 | 314 | 321 | 319 | 308 | 287 | 260          | 234   | 6616 | 276   | 6831 | 273  |  |
| 14   | 215  | 202 | 203 | 217 | 237 | 261 | 281 | 294 | 300 | 298 | 291 | 282 | 272 | 269 | 271 | 278 | 292 | 306 | 314 | 315 | 307 | 290 | 267          | 244   | 6506 | 271   | 6730 | 269  |  |
| 15   | 224  | 210 | 205 | 212 | 227 | 246 | 265 | 279 | 288 | 291 | 287 | 281 | 276 | 273 | 273 | 278 | 287 | 298 | 306 | 308 | 303 | 289 | 270          | 249   | 6425 | 268   | 6654 | 266  |  |
| 16   | 229  | 215 | 207 | 206 | 214 | 228 | 243 | 254 | 264 | 269 | 269 | 268 | 264 | 263 | 265 | 269 | 276 | 284 | 292 | 295 | 290 | 281 | 269          | 252   | 6166 | 257   | 6402 | 256  |  |
| 17   | 236  | 225 | 216 | 212 | 215 | 224 | 235 | 245 | 253 | 260 | 265 | 267 | 270 | 274 | 279 | 282 | 289 | 297 | 302 | 307 | 307 | 301 | 293          | 286   | 6340 | 264   | 6616 | 265  |  |
| 18   | 276  | 269 | 264 | 260 | 260 | 264 | 270 | 275 | 279 | 284 | 290 | 295 | 299 | 304 | 309 | 312 | 313 | 316 | 315 | 314 | 311 | 306 | 299          | 294   | 6978 | 291   | 7266 | 291  |  |
| 19   | 288  | 283 | 278 | 274 | 269 | 265 | 264 | 262 | 263 | 266 | 273 | 279 | 286 | 295 | 302 | 306 | 309 | 308 | 306 | 303 | 297 | 291 | 288          | 286   | 6841 | 285   | 7127 | 285  |  |
| 20   | 286  | 285 | 284 | 283 | 278 | 272 | 264 | 258 | 253 | 252 | 254 | 262 | 271 | 280 | 290 | 297 | 299 | 296 | 290 | 283 | 273 | 267 | 263          | 262   | 6602 | 275   | 6870 | 275  |  |
| 21   | 268  | 275 | 280 | 283 | 284 | 278 | 266 | 254 | 245 | 238 | 239 | 244 | 254 | 268 | 281 | 290 | 294 | 291 | 283 | 272 | 257 | 245 | 242          | 242   | 6373 | 266   | 6624 | 265  |  |
| 22   | 251  | 265 | 278 | 288 | 292 | 289 | 279 | 263 | 248 | 237 | 233 | 236 | 245 | 259 | 276 | 288 | 294 | 292 | 282 | 268 | 248 | 232 | 224          | 224   | 6291 | 262   | 6527 | 261  |  |
| 23   | 236  | 253 | 272 | 290 | 302 | 303 | 296 | 279 | 261 | 244 | 234 | 232 | 238 | 253 | 272 | 286 | 295 | 298 | 290 | 272 | 249 | 227 | 213          | 210   | 6305 | 263   | 6523 | 261  |  |
| 24   | 218  | 238 | 262 | 286 | 308 | 318 | 315 | 302 | 284 | 262 | 248 | 242 | 245 | 260 | 278 | 294 | 306 | 310 | 302 | 285 | 258 | 230 | 210          | 198   | 6459 | 269   | 6661 | 266  |  |
| 25   | 202  | 221 | 246 | 276 | 304 | 324 | 330 | 322 | 307 | 287 | 267 | 253 | 251 | 260 | 276 | 294 | 307 | 314 | 309 | 293 | 265 | 233 | 207          | 187   | 6535 | 272   | 6718 | 269  |  |
| 26   | 183  | 196 | 222 | 252 | 284 | 312 | 327 | 329 | 320 | 304 | 285 | 269 | 261 | 265 | 280 | 297 | 311 | 321 | 321 | 309 | 283 | 251 | 220          | 193   | 6595 | 275   | 6775 | 271  |  |
| 27   | 180  | 183 | 200 | 230 | 262 | 292 | 317 | 328 | 326 | 315 | 300 | 284 | 272 | 271 | 282 | 297 | 312 | 323 | 326 | 318 | 298 | 267 | 234          | 203   | 6620 | 276   | 6802 | 272  |  |
| 28   | 182  | 173 | 182 | 205 | 232 | 263 | 289 | 306 | 316 | 313 | 303 | 292 | 282 | 276 | 280 | 292 | 307 | 319 | 325 | 324 | 311 | 287 | 257          | 226   | 6542 | 273   | 6744 | 270  |  |
| 29   | 202  | 184 | 181 | 194 | 214 | 239 | 263 | 284 | 299 | 304 | 302 | 296 | 289 | 283 | 282 | 289 | 303 | 314 | 323 | 324 | 318 | 303 | 277          | 249   | 6516 | 272   | 6742 | 270  |  |
| 30   | 226  | 205 | 192 | 194 | 203 | 219 | 239 | 258 | 274 | 285 | 290 | 289 | 287 | 284 | 281 | 282 | 291 | 301 | 310 | 314 | 313 | 305 | 291          | 272   | 6405 | 267   | 6658 | 266  |  |
| 1    | 253  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |              |       |      |       |      |      |  |
|      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Monthly Mean | 269.6 | cm   |       |      |      |  |

Table 1. (Continued)

Station : Syowa Station  
 Latitude : 69° 00' 28" N  
 Longitude : 39° 34' 13" E  
 Duration : May 1–May 31, 2013  
 Unit : Centimeter

The zero of the tide gauge:  
 500 cm below Bench Mark No. 1040

| Date | Time |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |              | (24H) |      | (25H) |      |      |  |
|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------------|-------|------|-------|------|------|--|
|      | 0    | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22           | 23    | Sum  | Mean  | Sum  | Mean |  |
| 1    | 253  | 235 | 220 | 213 | 214 | 221 | 234 | 246 | 260 | 274 | 282 | 285 | 288 | 290 | 286 | 285 | 288 | 292 | 298 | 303 | 303 | 299 | 293          | 284   | 6446 | 269   | 6717 | 269  |  |
| 2    | 271  | 258 | 247 | 236 | 228 | 228 | 232 | 237 | 244 | 254 | 265 | 272 | 278 | 282 | 282 | 280 | 278 | 276 | 275 | 278 | 278 | 278 | 277          | 276   | 6310 | 263   | 6583 | 263  |  |
| 3    | 273  | 267 | 262 | 255 | 246 | 240 | 235 | 233 | 236 | 243 | 251 | 261 | 271 | 278 | 284 | 285 | 280 | 274 | 270 | 266 | 262 | 263 | 263          | 265   | 6263 | 261   | 6535 | 261  |  |
| 4    | 272  | 273 | 274 | 274 | 266 | 258 | 250 | 240 | 235 | 237 | 242 | 249 | 260 | 272 | 278 | 280 | 282 | 274 | 263 | 256 | 247 | 243 | 245          | 251   | 6221 | 259   | 6483 | 259  |  |
| 5    | 262  | 273 | 282 | 290 | 290 | 284 | 276 | 263 | 252 | 247 | 248 | 253 | 263 | 275 | 284 | 292 | 292 | 283 | 271 | 257 | 244 | 235 | 233          | 238   | 6387 | 266   | 6637 | 265  |  |
| 6    | 250  | 266 | 283 | 297 | 305 | 305 | 297 | 282 | 269 | 258 | 254 | 257 | 264 | 275 | 288 | 296 | 298 | 291 | 279 | 260 | 240 | 226 | 217          | 218   | 6475 | 270   | 6707 | 268  |  |
| 7    | 232  | 251 | 272 | 293 | 309 | 316 | 313 | 302 | 288 | 275 | 267 | 266 | 272 | 286 | 299 | 311 | 319 | 316 | 305 | 285 | 260 | 238 | 224          | 218   | 6717 | 280   | 6943 | 278  |  |
| 8    | 226  | 244 | 265 | 290 | 309 | 322 | 323 | 313 | 299 | 283 | 269 | 261 | 265 | 276 | 288 | 300 | 310 | 308 | 297 | 279 | 253 | 227 | 207          | 196   | 6610 | 275   | 6809 | 272  |  |
| 9    | 199  | 215 | 238 | 264 | 288 | 307 | 314 | 309 | 300 | 285 | 270 | 262 | 260 | 268 | 282 | 294 | 303 | 306 | 300 | 284 | 258 | 229 | 205          | 189   | 6429 | 268   | 6615 | 265  |  |
| 10   | 186  | 197 | 218 | 245 | 270 | 291 | 305 | 306 | 301 | 288 | 276 | 268 | 261 | 266 | 279 | 291 | 303 | 309 | 306 | 293 | 269 | 242 | 214          | 194   | 6378 | 266   | 6564 | 263  |  |
| 11   | 186  | 190 | 207 | 233 | 259 | 283 | 301 | 308 | 306 | 297 | 286 | 276 | 270 | 271 | 280 | 293 | 306 | 315 | 316 | 307 | 287 | 261 | 234          | 211   | 6483 | 270   | 6681 | 267  |  |
| 12   | 198  | 196 | 205 | 227 | 253 | 276 | 296 | 307 | 310 | 304 | 294 | 287 | 279 | 276 | 283 | 293 | 305 | 315 | 318 | 311 | 295 | 272 | 243          | 218   | 6561 | 273   | 6761 | 270  |  |
| 13   | 200  | 190 | 194 | 209 | 228 | 252 | 272 | 284 | 291 | 290 | 281 | 274 | 267 | 263 | 264 | 271 | 284 | 295 | 299 | 298 | 285 | 267 | 243          | 219   | 6220 | 259   | 6421 | 257  |  |
| 14   | 201  | 190 | 188 | 199 | 216 | 237 | 258 | 270 | 280 | 285 | 282 | 276 | 272 | 268 | 267 | 274 | 286 | 295 | 304 | 307 | 300 | 287 | 268          | 247   | 6257 | 261   | 6486 | 259  |  |
| 15   | 229  | 215 | 209 | 213 | 224 | 241 | 260 | 273 | 284 | 291 | 289 | 288 | 284 | 280 | 280 | 282 | 290 | 299 | 306 | 310 | 307 | 298 | 285          | 268   | 6505 | 271   | 6757 | 270  |  |
| 16   | 252  | 237 | 229 | 229 | 233 | 245 | 258 | 268 | 280 | 288 | 291 | 291 | 288 | 285 | 284 | 284 | 284 | 290 | 294 | 296 | 294 | 290 | 279          | 266   | 6535 | 272   | 6790 | 272  |  |
| 17   | 255  | 242 | 232 | 228 | 227 | 232 | 239 | 247 | 257 | 265 | 270 | 275 | 274 | 272 | 272 | 269 | 268 | 269 | 271 | 273 | 271 | 268 | 266          | 261   | 6203 | 258   | 6457 | 258  |  |
| 18   | 254  | 248 | 242 | 237 | 232 | 232 | 235 | 238 | 245 | 252 | 258 | 266 | 271 | 271 | 272 | 271 | 267 | 263 | 260 | 260 | 257 | 254 | 255          | 256   | 6096 | 254   | 6353 | 254  |  |
| 19   | 257  | 257 | 256 | 252 | 247 | 242 | 240 | 237 | 238 | 242 | 247 | 255 | 263 | 267 | 270 | 270 | 267 | 260 | 254 | 248 | 242 | 241 | 242          | 245   | 6039 | 252   | 6293 | 252  |  |
| 20   | 254  | 262 | 265 | 268 | 265 | 260 | 254 | 245 | 242 | 243 | 244 | 254 | 264 | 270 | 276 | 277 | 272 | 264 | 254 | 241 | 230 | 226 | 227          | 232   | 6089 | 254   | 6334 | 253  |  |
| 21   | 245  | 259 | 271 | 280 | 284 | 280 | 272 | 260 | 251 | 246 | 246 | 252 | 261 | 269 | 277 | 281 | 279 | 268 | 253 | 237 | 220 | 208 | 205          | 211   | 6115 | 255   | 6341 | 254  |  |
| 22   | 226  | 246 | 265 | 284 | 293 | 295 | 289 | 276 | 263 | 252 | 248 | 251 | 258 | 269 | 280 | 286 | 287 | 279 | 262 | 242 | 218 | 200 | 192          | 194   | 6155 | 256   | 6363 | 255  |  |
| 23   | 208  | 230 | 255 | 282 | 302 | 313 | 312 | 303 | 289 | 274 | 265 | 263 | 268 | 278 | 291 | 300 | 301 | 296 | 282 | 256 | 229 | 203 | 183          | 177   | 6360 | 265   | 6546 | 262  |  |
| 24   | 186  | 206 | 235 | 267 | 293 | 314 | 322 | 318 | 307 | 291 | 277 | 272 | 272 | 280 | 295 | 305 | 312 | 311 | 298 | 274 | 244 | 212 | 185          | 168   | 6444 | 269   | 6611 | 264  |  |
| 25   | 167  | 183 | 208 | 238 | 271 | 299 | 313 | 319 | 313 | 298 | 285 | 273 | 267 | 273 | 285 | 297 | 308 | 311 | 305 | 288 | 259 | 224 | 192          | 167   | 6343 | 264   | 6498 | 260  |  |
| 26   | 155  | 160 | 180 | 208 | 242 | 274 | 297 | 311 | 314 | 306 | 295 | 284 | 276 | 276 | 287 | 301 | 313 | 322 | 322 | 312 | 290 | 260 | 226          | 196   | 6407 | 267   | 6582 | 263  |  |
| 27   | 175  | 169 | 179 | 201 | 229 | 259 | 286 | 306 | 315 | 314 | 306 | 297 | 287 | 283 | 288 | 299 | 313 | 323 | 328 | 326 | 312 | 288 | 255          | 223   | 6561 | 273   | 6759 | 270  |  |
| 28   | 198  | 180 | 176 | 187 | 208 | 233 | 257 | 278 | 293 | 298 | 295 | 290 | 281 | 272 | 270 | 277 | 290 | 303 | 311 | 313 | 308 | 294 | 269          | 241   | 6322 | 263   | 6539 | 262  |  |
| 29   | 217  | 195 | 184 | 184 | 195 | 212 | 232 | 251 | 268 | 277 | 280 | 279 | 272 | 265 | 259 | 258 | 266 | 277 | 286 | 292 | 291 | 286 | 273          | 254   | 6053 | 252   | 6287 | 251  |  |
| 30   | 234  | 215 | 200 | 193 | 195 | 204 | 218 | 234 | 246 | 256 | 265 | 266 | 263 | 255 | 248 | 244 | 242 | 249 | 257 | 262 | 267 | 269 | 264          | 255   | 5801 | 242   | 6045 | 242  |  |
| 31   | 244  | 231 | 219 | 208 | 203 | 206 | 212 | 221 | 231 | 242 | 249 | 255 | 255 | 251 | 245 | 237 | 232 | 230 | 232 | 238 | 242 | 244 | 247          | 248   | 5622 | 234   | 5867 | 235  |  |
| 1    | 245  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |              |       |      |       |      |      |  |
|      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Monthly Mean | 262.6 | cm   |       |      |      |  |



Table 1. (Continued)

Station : Syowa Station  
 Latitude : 69° 00' 28" N  
 Longitude : 39° 34' 13" E  
 Duration : June 1–June 30, 2013  
 Unit : Centimeter

The zero of the tide gauge:  
 500 cm below Bench Mark No. 1040

| Date | Time |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |              | (24H) |          | (25H) |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------------|-------|----------|-------|------|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
|      | 0    | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22           | 23    | Sum      | Mean  | Sum  | Mean |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1    | 245  | 241 | 234 | 226 | 223 | 218 | 218 | 222 | 229 | 236 | 243 | 252 | 255 | 251 | 244 | 236 | 227 | 225 | 224 | 224 | 229 | 234 | 239          | 5630  | 235      | 5874  | 235  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2    | 244  | 248 | 250 | 247 | 245 | 240 | 235 | 234 | 235 | 238 | 244 | 251 | 258 | 258 | 257 | 252 | 243 | 232 | 224 | 216 | 211 | 213 | 215          | 223   | 5713     | 238   | 5948 | 238  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3    | 235  | 243 | 252 | 260 | 261 | 258 | 252 | 247 | 243 | 241 | 242 | 250 | 256 | 259 | 261 | 258 | 249 | 237 | 225 | 212 | 201 | 196 | 196          | 203   | 5737     | 239   | 5953 | 238  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4    | 216  | 234 | 247 | 260 | 271 | 275 | 271 | 265 | 258 | 254 | 255 | 259 | 265 | 272 | 276 | 277 | 273 | 263 | 249 | 232 | 217 | 205 | 201          | 206   | 6001     | 250   | 6219 | 249  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5    | 218  | 236 | 257 | 273 | 286 | 294 | 293 | 287 | 279 | 271 | 268 | 269 | 273 | 280 | 286 | 289 | 289 | 281 | 266 | 247 | 227 | 208 | 197          | 199   | 6273     | 261   | 6483 | 259  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6    | 210  | 225 | 247 | 270 | 289 | 301 | 306 | 301 | 291 | 281 | 274 | 271 | 273 | 280 | 291 | 297 | 297 | 293 | 279 | 258 | 235 | 212 | 195          | 189   | 6365     | 265   | 6560 | 262  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7    | 195  | 209 | 231 | 255 | 277 | 293 | 300 | 299 | 290 | 279 | 269 | 264 | 265 | 272 | 283 | 292 | 297 | 296 | 286 | 268 | 243 | 217 | 197          | 185   | 6262     | 261   | 6447 | 258  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8    | 185  | 197 | 218 | 244 | 270 | 290 | 303 | 306 | 300 | 291 | 281 | 275 | 274 | 278 | 288 | 298 | 306 | 308 | 301 | 285 | 261 | 233 | 207          | 191   | 6390     | 266   | 6573 | 263  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9    | 183  | 189 | 208 | 232 | 257 | 279 | 295 | 302 | 300 | 292 | 283 | 275 | 271 | 274 | 283 | 295 | 305 | 311 | 309 | 299 | 278 | 251 | 224          | 201   | 6396     | 267   | 6586 | 263  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10   | 190  | 190 | 203 | 226 | 252 | 276 | 296 | 307 | 308 | 304 | 295 | 287 | 281 | 279 | 287 | 299 | 310 | 320 | 322 | 314 | 297 | 273 | 244          | 220   | 6580     | 274   | 6784 | 271  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11   | 204  | 198 | 203 | 220 | 242 | 266 | 285 | 297 | 303 | 299 | 291 | 284 | 275 | 268 | 272 | 280 | 291 | 301 | 305 | 303 | 290 | 270 | 243          | 218   | 6408     | 267   | 6608 | 264  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12   | 200  | 189 | 189 | 201 | 221 | 243 | 264 | 277 | 285 | 287 | 280 | 274 | 268 | 261 | 260 | 267 | 278 | 289 | 298 | 301 | 294 | 280 | 258          | 235   | 6199     | 258   | 6416 | 257  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13   | 217  | 202 | 199 | 205 | 219 | 238 | 258 | 272 | 283 | 286 | 281 | 276 | 268 | 260 | 256 | 258 | 267 | 275 | 285 | 291 | 288 | 278 | 264          | 246   | 6172     | 257   | 6399 | 256  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14   | 227  | 214 | 207 | 206 | 214 | 230 | 247 | 260 | 272 | 279 | 278 | 273 | 268 | 261 | 254 | 254 | 257 | 263 | 273 | 280 | 281 | 278 | 268          | 254   | 6098     | 254   | 6340 | 254  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15   | 242  | 228 | 219 | 218 | 220 | 229 | 243 | 255 | 266 | 274 | 276 | 276 | 271 | 264 | 259 | 254 | 252 | 256 | 262 | 268 | 271 | 273 | 269          | 263   | 6108     | 255   | 6364 | 255  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16   | 256  | 247 | 239 | 234 | 233 | 236 | 243 | 252 | 261 | 267 | 272 | 275 | 271 | 265 | 259 | 251 | 245 | 242 | 244 | 246 | 248 | 251 | 252          | 253   | 6042     | 252   | 6296 | 252  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17   | 254  | 249 | 246 | 243 | 239 | 239 | 240 | 241 | 248 | 253 | 256 | 264 | 264 | 258 | 254 | 248 | 237 | 230 | 227 | 224 | 223 | 226 | 231          | 239   | 5833     | 243   | 6080 | 243  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18   | 247  | 251 | 256 | 258 | 255 | 253 | 253 | 252 | 252 | 255 | 262 | 267 | 270 | 273 | 268 | 262 | 253 | 241 | 230 | 223 | 217 | 217 | 222          | 231   | 5968     | 249   | 6214 | 249  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 19   | 246  | 259 | 269 | 278 | 281 | 278 | 274 | 268 | 262 | 262 | 265 | 269 | 273 | 277 | 277 | 273 | 264 | 250 | 234 | 220 | 209 | 203 | 202          | 213   | 6106     | 254   | 6337 | 253  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20   | 231  | 251 | 272 | 291 | 301 | 306 | 302 | 294 | 287 | 280 | 279 | 281 | 284 | 289 | 292 | 290 | 281 | 266 | 247 | 225 | 203 | 188 | 182          | 187   | 6309     | 263   | 6512 | 260  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 21   | 203  | 223 | 251 | 277 | 295 | 307 | 307 | 300 | 291 | 281 | 277 | 275 | 280 | 288 | 294 | 298 | 296 | 284 | 268 | 240 | 212 | 189 | 170          | 165   | 6271     | 261   | 6446 | 258  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 22   | 175  | 192 | 221 | 252 | 278 | 298 | 307 | 303 | 293 | 283 | 272 | 267 | 269 | 276 | 286 | 295 | 297 | 293 | 281 | 254 | 222 | 193 | 165          | 152   | 6124     | 255   | 6278 | 251  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 23   | 154  | 167 | 194 | 226 | 259 | 286 | 302 | 309 | 304 | 291 | 279 | 271 | 268 | 273 | 283 | 295 | 303 | 305 | 299 | 279 | 248 | 215 | 182          | 157   | 6149     | 256   | 6296 | 252  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 24   | 147  | 151 | 170 | 199 | 231 | 261 | 285 | 298 | 297 | 289 | 278 | 266 | 258 | 260 | 271 | 284 | 295 | 305 | 306 | 295 | 272 | 240 | 204          | 173   | 6035     | 251   | 6188 | 248  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 25   | 153  | 145 | 152 | 175 | 204 | 232 | 258 | 277 | 283 | 280 | 272 | 261 | 250 | 246 | 252 | 265 | 280 | 293 | 302 | 300 | 288 | 264 | 232          | 202   | 5866     | 244   | 6042 | 242  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 26   | 176  | 161 | 160 | 172 | 196 | 223 | 246 | 268 | 280 | 281 | 275 | 264 | 251 | 241 | 240 | 248 | 262 | 279 | 292 | 296 | 294 | 280 | 258          | 231   | 5874     | 245   | 6079 | 243  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 27   | 205  | 187 | 178 | 180 | 195 | 218 | 237 | 255 | 269 | 275 | 272 | 263 | 251 | 238 | 228 | 230 | 241 | 253 | 269 | 281 | 283 | 280 | 269          | 251   | 5808     | 242   | 6037 | 241  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 28   | 229  | 212 | 201 | 198 | 204 | 221 | 238 | 253 | 268 | 276 | 276 | 270 | 261 | 250 | 239 | 233 | 236 | 247 | 262 | 274 | 282 | 286 | 283          | 274   | 5973     | 249   | 6237 | 249  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 29   | 264  | 254 | 243 | 238 | 242 | 249 | 261 | 274 | 285 | 292 | 298 | 297 | 289 | 279 | 268 | 257 | 251 | 253 | 261 | 268 | 275 | 279 | 279          | 277   | 6433     | 268   | 6706 | 268  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 30   | 273  | 266 | 259 | 254 | 253 | 253 | 258 | 268 | 275 | 281 | 287 | 289 | 283 | 277 | 271 | 262 | 255 | 251 | 253 | 260 | 266 | 271 | 275          | 279   | 6419     | 267   | 6699 | 268  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1    | 280  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |              |       |          |       |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Monthly Mean |       | 254.9 cm |       |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Table 1. (Continued)

Station : Syowa Station  
 Latitude : 69° 00' 28" N  
 Longitude : 39° 34' 13" E  
 Duration : July 1–July 31, 2013  
 Unit : Centimeter

The zero of the tide gauge:  
 500 cm below Bench Mark No. 1040

| Date | Time |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |              | (24H) |      | (25H) |      |      |  |
|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------------|-------|------|-------|------|------|--|
|      | 0    | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22           | 23    | Sum  | Mean  | Sum  | Mean |  |
| 1    | 280  | 280 | 282 | 281 | 280 | 280 | 282 | 284 | 288 | 294 | 297 | 299 | 297 | 290 | 283 | 274 | 263 | 255 | 248 | 244 | 247 | 250 | 254          | 262   | 6594 | 275   | 6866 | 275  |  |
| 2    | 272  | 278 | 285 | 293 | 295 | 295 | 294 | 293 | 293 | 294 | 296 | 299 | 300 | 296 | 291 | 284 | 274 | 262 | 250 | 240 | 234 | 231 | 232          | 238   | 6619 | 276   | 6868 | 275  |  |
| 3    | 249  | 263 | 274 | 287 | 295 | 298 | 301 | 297 | 293 | 293 | 296 | 298 | 300 | 302 | 302 | 297 | 289 | 279 | 264 | 250 | 238 | 229 | 226          | 229   | 6649 | 277   | 6889 | 276  |  |
| 4    | 240  | 255 | 273 | 288 | 300 | 308 | 310 | 305 | 299 | 294 | 291 | 291 | 292 | 293 | 295 | 293 | 289 | 278 | 262 | 244 | 226 | 210 | 201          | 202   | 6539 | 272   | 6751 | 270  |  |
| 5    | 212  | 227 | 246 | 267 | 284 | 295 | 300 | 297 | 291 | 283 | 278 | 277 | 279 | 283 | 288 | 293 | 292 | 284 | 271 | 253 | 229 | 210 | 195          | 189   | 6323 | 263   | 6520 | 261  |  |
| 6    | 197  | 212 | 231 | 254 | 275 | 290 | 297 | 296 | 289 | 279 | 271 | 267 | 268 | 272 | 279 | 285 | 289 | 285 | 273 | 254 | 228 | 203 | 182          | 172   | 6148 | 256   | 6321 | 253  |  |
| 7    | 173  | 184 | 205 | 230 | 255 | 276 | 288 | 291 | 290 | 281 | 275 | 273 | 273 | 277 | 293 | 305 | 313 | 318 | 314 | 298 | 275 | 249 | 226          | 210   | 6372 | 266   | 6576 | 263  |  |
| 8    | 204  | 208 | 223 | 244 | 264 | 281 | 292 | 294 | 291 | 282 | 269 | 261 | 255 | 258 | 268 | 279 | 291 | 298 | 296 | 285 | 261 | 234 | 207          | 185   | 6230 | 260   | 6405 | 256  |  |
| 9    | 175  | 175 | 188 | 213 | 238 | 259 | 277 | 287 | 284 | 275 | 266 | 255 | 248 | 249 | 258 | 270 | 284 | 294 | 297 | 289 | 270 | 245 | 216          | 192   | 6004 | 250   | 6183 | 247  |  |
| 10   | 179  | 175 | 185 | 204 | 230 | 255 | 273 | 286 | 288 | 282 | 272 | 260 | 251 | 249 | 252 | 265 | 281 | 293 | 302 | 302 | 289 | 268 | 243          | 217   | 6101 | 254   | 6302 | 252  |  |
| 11   | 201  | 193 | 197 | 212 | 235 | 260 | 279 | 293 | 299 | 294 | 283 | 272 | 260 | 252 | 252 | 261 | 274 | 289 | 302 | 303 | 296 | 281 | 257          | 233   | 6278 | 262   | 6492 | 260  |  |
| 12   | 214  | 202 | 199 | 208 | 227 | 250 | 267 | 283 | 292 | 290 | 281 | 270 | 258 | 247 | 244 | 250 | 260 | 275 | 289 | 295 | 295 | 286 | 267          | 247   | 6196 | 258   | 6425 | 257  |  |
| 13   | 229  | 215 | 209 | 212 | 226 | 243 | 261 | 277 | 286 | 288 | 284 | 274 | 261 | 250 | 243 | 242 | 250 | 262 | 274 | 285 | 289 | 286 | 276          | 262   | 6184 | 258   | 6431 | 257  |  |
| 14   | 247  | 234 | 226 | 225 | 233 | 245 | 259 | 273 | 282 | 285 | 285 | 276 | 262 | 251 | 241 | 235 | 236 | 243 | 254 | 264 | 273 | 275 | 272          | 265   | 6141 | 256   | 6397 | 256  |  |
| 15   | 256  | 246 | 239 | 237 | 239 | 246 | 257 | 268 | 277 | 282 | 281 | 275 | 264 | 253 | 242 | 233 | 227 | 229 | 236 | 242 | 250 | 256 | 259          | 260   | 6054 | 252   | 6312 | 252  |  |
| 16   | 258  | 255 | 252 | 249 | 250 | 253 | 260 | 267 | 273 | 279 | 281 | 279 | 273 | 263 | 252 | 241 | 231 | 225 | 225 | 228 | 232 | 238 | 247          | 252   | 6063 | 253   | 6322 | 253  |  |
| 17   | 259  | 264 | 266 | 267 | 267 | 267 | 270 | 273 | 275 | 280 | 282 | 283 | 281 | 274 | 267 | 257 | 245 | 235 | 227 | 223 | 224 | 224 | 230          | 241   | 6181 | 258   | 6435 | 257  |  |
| 18   | 254  | 265 | 275 | 284 | 288 | 287 | 285 | 284 | 282 | 281 | 281 | 282 | 281 | 279 | 272 | 263 | 251 | 234 | 219 | 206 | 194 | 189 | 191          | 201   | 6128 | 255   | 6346 | 254  |  |
| 19   | 218  | 237 | 256 | 273 | 284 | 290 | 289 | 284 | 279 | 275 | 273 | 275 | 278 | 279 | 281 | 278 | 269 | 255 | 237 | 218 | 200 | 187 | 183          | 188   | 6086 | 254   | 6290 | 252  |  |
| 20   | 204  | 227 | 253 | 279 | 299 | 311 | 313 | 308 | 300 | 291 | 285 | 286 | 288 | 292 | 299 | 301 | 297 | 286 | 266 | 240 | 213 | 188 | 171          | 167   | 6364 | 265   | 6540 | 262  |  |
| 21   | 176  | 197 | 224 | 252 | 280 | 299 | 305 | 303 | 294 | 282 | 271 | 268 | 270 | 276 | 285 | 294 | 298 | 294 | 281 | 255 | 224 | 194 | 168          | 154   | 6144 | 256   | 6300 | 252  |  |
| 22   | 156  | 168 | 193 | 225 | 256 | 280 | 296 | 299 | 290 | 278 | 266 | 257 | 256 | 261 | 274 | 291 | 301 | 306 | 301 | 283 | 253 | 220 | 189          | 164   | 6063 | 253   | 6219 | 249  |  |
| 23   | 156  | 162 | 182 | 211 | 242 | 272 | 294 | 303 | 301 | 290 | 274 | 263 | 257 | 260 | 274 | 292 | 310 | 322 | 325 | 318 | 296 | 264 | 228          | 199   | 6295 | 262   | 6475 | 259  |  |
| 24   | 180  | 176 | 186 | 209 | 237 | 263 | 286 | 299 | 297 | 286 | 271 | 252 | 238 | 237 | 245 | 261 | 281 | 297 | 310 | 310 | 296 | 272 | 240          | 210   | 6139 | 256   | 6327 | 253  |  |
| 25   | 188  | 173 | 177 | 193 | 217 | 243 | 266 | 280 | 285 | 279 | 263 | 246 | 229 | 220 | 224 | 237 | 256 | 277 | 293 | 301 | 299 | 285 | 262          | 236   | 5929 | 247   | 6143 | 246  |  |
| 26   | 214  | 199 | 196 | 206 | 225 | 250 | 272 | 288 | 297 | 295 | 283 | 268 | 250 | 237 | 232 | 237 | 253 | 272 | 290 | 305 | 309 | 306 | 293          | 274   | 6251 | 260   | 6507 | 260  |  |
| 27   | 256  | 242 | 235 | 237 | 248 | 267 | 285 | 298 | 307 | 307 | 297 | 282 | 265 | 248 | 237 | 236 | 242 | 256 | 274 | 287 | 295 | 298 | 292          | 282   | 6473 | 270   | 6743 | 270  |  |
| 28   | 270  | 259 | 251 | 249 | 256 | 269 | 281 | 293 | 299 | 299 | 294 | 281 | 264 | 249 | 236 | 228 | 226 | 233 | 246 | 257 | 267 | 272 | 272          | 267   | 6318 | 263   | 6579 | 263  |  |
| 29   | 261  | 256 | 253 | 251 | 254 | 261 | 271 | 280 | 286 | 286 | 285 | 278 | 262 | 251 | 239 | 226 | 220 | 220 | 224 | 232 | 239 | 244 | 246          | 247   | 6072 | 253   | 6320 | 253  |  |
| 30   | 248  | 248 | 250 | 253 | 255 | 261 | 267 | 273 | 278 | 278 | 278 | 276 | 266 | 256 | 247 | 237 | 227 | 223 | 222 | 221 | 224 | 229 | 231          | 236   | 5984 | 249   | 6228 | 249  |  |
| 31   | 244  | 248 | 256 | 263 | 266 | 271 | 275 | 276 | 277 | 278 | 276 | 274 | 270 | 262 | 254 | 247 | 237 | 226 | 220 | 212 | 207 | 208 | 208          | 209   | 5964 | 249   | 6185 | 247  |  |
| 1    | 221  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |              |       |      |       |      |      |  |
|      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Monthly Mean | 259.3 | cm   |       |      |      |  |

Table 1. (Continued)

Station : Syowa Station  
 Latitude : 69° 00' 28" N  
 Longitude : 39° 34' 13" E  
 Duration : Aug. 1–Aug. 31, 2013  
 Unit : Centimeter

The zero of the tide gauge:  
 500 cm below Bench Mark No. 1040

| Date | Time |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |              | (24H) |      | (25H) |      |      |  |
|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------------|-------|------|-------|------|------|--|
|      | 0    | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22           | 23    | Sum  | Mean  | Sum  | Mean |  |
| 1    | 221  | 232 | 241 | 253 | 264 | 267 | 269 | 270 | 269 | 269 | 269 | 268 | 267 | 267 | 266 | 263 | 257 | 246 | 237 | 228 | 220 | 215 | 215          | 220   | 5993 | 250   | 6224 | 249  |  |
| 2    | 231  | 247 | 263 | 278 | 292 | 302 | 301 | 298 | 294 | 286 | 281 | 279 | 277 | 277 | 273 | 266 | 257 | 244 | 229 | 214 | 200 | 193 | 195          | 6254  | 261  | 6458  | 258  |      |  |
| 3    | 204  | 220 | 239 | 260 | 277 | 290 | 295 | 297 | 292 | 285 | 283 | 281 | 281 | 288 | 295 | 298 | 296 | 288 | 275 | 255 | 233 | 214 | 198          | 192   | 6336 | 264   | 6535 | 261  |  |
| 4    | 199  | 210 | 228 | 249 | 269 | 280 | 282 | 279 | 271 | 261 | 252 | 247 | 248 | 254 | 263 | 270 | 272 | 268 | 259 | 240 | 217 | 196 | 178          | 171   | 5863 | 244   | 6039 | 242  |  |
| 5    | 176  | 189 | 211 | 237 | 259 | 277 | 288 | 290 | 283 | 274 | 264 | 258 | 260 | 266 | 276 | 288 | 294 | 295 | 288 | 269 | 244 | 216 | 191          | 176   | 6069 | 253   | 6241 | 250  |  |
| 6    | 172  | 180 | 201 | 223 | 246 | 267 | 276 | 275 | 267 | 255 | 243 | 234 | 231 | 237 | 250 | 267 | 279 | 283 | 284 | 272 | 248 | 221 | 196          | 178   | 5785 | 241   | 5956 | 238  |  |
| 7    | 171  | 178 | 196 | 222 | 246 | 268 | 283 | 286 | 280 | 268 | 254 | 241 | 236 | 240 | 253 | 270 | 287 | 297 | 302 | 293 | 273 | 248 | 220          | 197   | 6009 | 250   | 6193 | 248  |  |
| 8    | 184  | 185 | 199 | 221 | 247 | 271 | 286 | 292 | 289 | 275 | 259 | 246 | 234 | 232 | 242 | 260 | 279 | 294 | 304 | 303 | 290 | 267 | 240          | 216   | 6115 | 255   | 6313 | 253  |  |
| 9    | 198  | 193 | 200 | 218 | 242 | 265 | 281 | 290 | 287 | 273 | 258 | 239 | 225 | 218 | 221 | 235 | 256 | 274 | 288 | 292 | 286 | 268 | 244          | 220   | 5971 | 249   | 6173 | 247  |  |
| 10   | 202  | 193 | 195 | 209 | 231 | 254 | 271 | 282 | 282 | 274 | 259 | 239 | 224 | 213 | 213 | 223 | 240 | 259 | 276 | 286 | 286 | 276 | 258          | 236   | 5881 | 245   | 6100 | 244  |  |
| 11   | 219  | 207 | 205 | 213 | 228 | 249 | 266 | 276 | 279 | 273 | 259 | 239 | 221 | 208 | 200 | 204 | 217 | 232 | 248 | 262 | 268 | 264 | 253          | 238   | 5728 | 239   | 5951 | 238  |  |
| 12   | 223  | 211 | 206 | 209 | 221 | 237 | 250 | 262 | 266 | 262 | 252 | 235 | 217 | 203 | 192 | 188 | 195 | 208 | 222 | 236 | 247 | 250 | 247          | 240   | 5479 | 228   | 5710 | 228  |  |
| 13   | 231  | 223 | 218 | 221 | 229 | 238 | 252 | 262 | 264 | 265 | 260 | 245 | 229 | 214 | 201 | 194 | 193 | 200 | 211 | 223 | 233 | 241 | 246          | 245   | 5538 | 231   | 5782 | 231  |  |
| 14   | 244  | 244 | 241 | 242 | 246 | 252 | 261 | 269 | 273 | 273 | 271 | 263 | 250 | 237 | 226 | 215 | 209 | 207 | 210 | 216 | 223 | 231 | 239          | 245   | 5787 | 241   | 6038 | 242  |  |
| 15   | 251  | 256 | 261 | 264 | 267 | 270 | 272 | 275 | 276 | 275 | 272 | 267 | 259 | 249 | 238 | 226 | 213 | 203 | 196 | 192 | 192 | 196 | 202          | 212   | 5784 | 241   | 6012 | 240  |  |
| 16   | 228  | 241 | 252 | 262 | 268 | 271 | 273 | 273 | 271 | 271 | 270 | 268 | 267 | 264 | 256 | 250 | 240 | 224 | 211 | 200 | 190 | 187 | 190          | 200   | 5827 | 243   | 6044 | 242  |  |
| 17   | 217  | 236 | 256 | 274 | 285 | 289 | 289 | 285 | 277 | 272 | 269 | 268 | 269 | 271 | 272 | 268 | 262 | 247 | 227 | 209 | 191 | 176 | 172          | 177   | 5958 | 248   | 6148 | 246  |  |
| 18   | 190  | 212 | 238 | 262 | 280 | 290 | 290 | 283 | 272 | 263 | 258 | 256 | 259 | 266 | 273 | 277 | 276 | 267 | 247 | 224 | 199 | 175 | 160          | 158   | 5875 | 245   | 6043 | 242  |  |
| 19   | 168  | 187 | 213 | 243 | 267 | 283 | 287 | 282 | 270 | 256 | 247 | 242 | 245 | 256 | 268 | 279 | 288 | 285 | 271 | 249 | 219 | 188 | 164          | 151   | 5808 | 242   | 5961 | 238  |  |
| 20   | 153  | 167 | 192 | 222 | 249 | 269 | 278 | 275 | 261 | 244 | 230 | 219 | 220 | 233 | 251 | 270 | 285 | 292 | 289 | 272 | 242 | 210 | 179          | 158   | 5660 | 236   | 5812 | 232  |  |
| 21   | 152  | 159 | 181 | 210 | 237 | 261 | 274 | 273 | 262 | 243 | 224 | 209 | 204 | 214 | 233 | 256 | 279 | 294 | 300 | 295 | 273 | 241 | 212          | 187   | 5673 | 236   | 5847 | 234  |  |
| 22   | 174  | 176 | 193 | 218 | 246 | 271 | 287 | 290 | 281 | 263 | 242 | 223 | 211 | 213 | 229 | 253 | 278 | 298 | 313 | 315 | 302 | 277 | 250          | 224   | 6027 | 251   | 6232 | 249  |  |
| 23   | 205  | 199 | 209 | 229 | 252 | 277 | 293 | 298 | 293 | 277 | 253 | 231 | 213 | 206 | 214 | 234 | 260 | 282 | 301 | 310 | 306 | 290 | 267          | 243   | 6142 | 256   | 6367 | 255  |  |
| 24   | 225  | 213 | 215 | 231 | 250 | 272 | 288 | 295 | 294 | 282 | 261 | 239 | 219 | 206 | 206 | 218 | 241 | 264 | 283 | 299 | 303 | 296 | 282          | 263   | 6145 | 256   | 6392 | 256  |  |
| 25   | 247  | 237 | 234 | 243 | 259 | 280 | 295 | 302 | 302 | 293 | 275 | 253 | 233 | 218 | 209 | 213 | 229 | 245 | 264 | 279 | 285 | 285 | 277          | 264   | 6221 | 259   | 6475 | 259  |  |
| 26   | 254  | 245 | 241 | 245 | 256 | 273 | 285 | 292 | 294 | 287 | 274 | 256 | 235 | 220 | 210 | 205 | 211 | 225 | 241 | 254 | 263 | 266 | 264          | 260   | 6056 | 252   | 6311 | 252  |  |
| 27   | 255  | 252 | 251 | 255 | 262 | 274 | 285 | 292 | 293 | 290 | 283 | 269 | 250 | 237 | 227 | 220 | 219 | 225 | 234 | 244 | 252 | 256 | 257          | 258   | 6140 | 256   | 6398 | 256  |  |
| 28   | 258  | 258 | 261 | 267 | 272 | 280 | 287 | 292 | 294 | 292 | 286 | 277 | 264 | 253 | 245 | 237 | 231 | 231 | 233 | 238 | 242 | 244 | 246          | 251   | 6239 | 260   | 6494 | 260  |  |
| 29   | 255  | 259 | 266 | 274 | 280 | 285 | 290 | 293 | 293 | 290 | 287 | 281 | 273 | 266 | 260 | 252 | 246 | 240 | 235 | 233 | 232 | 231 | 232          | 238   | 6291 | 262   | 6535 | 261  |  |
| 30   | 244  | 252 | 262 | 273 | 280 | 284 | 286 | 285 | 284 | 281 | 278 | 275 | 272 | 267 | 263 | 257 | 249 | 240 | 231 | 222 | 214 | 208 | 207          | 211   | 6125 | 255   | 6344 | 254  |  |
| 31   | 219  | 231 | 246 | 258 | 267 | 273 | 272 | 267 | 263 | 258 | 252 | 249 | 248 | 249 | 250 | 248 | 244 | 235 | 223 | 210 | 198 | 188 | 183          | 188   | 5719 | 238   | 5918 | 237  |  |
| 1    | 199  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |              |       |      |       |      |      |  |
|      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Monthly Mean | 248.0 | cm   |       |      |      |  |

Table 1. (Continued)

Station : Syowa Station  
 Latitude : 69° 00' 28" N  
 Longitude : 39° 34' 13" E  
 Duration : Sep. 1–Sep. 30, 2013  
 Unit : Centimeter

The zero of the tide gauge:  
 500 cm below Bench Mark No. 1040

| Date | Time |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |              | (24H) |      | (25H) |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------------|-------|------|-------|------|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
|      | 0    | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22           | 23    | Sum  | Mean  | Sum  | Mean |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1    | 199  | 213 | 233 | 252 | 264 | 272 | 274 | 269 | 263 | 256 | 252 | 250 | 252 | 259 | 264 | 268 | 269 | 262 | 250 | 235 | 217 | 202 | 194          | 193   | 5862 | 244   | 6063 | 243  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2    | 201  | 219 | 239 | 259 | 275 | 284 | 286 | 277 | 266 | 257 | 248 | 244 | 246 | 253 | 266 | 275 | 277 | 274 | 263 | 245 | 223 | 202 | 189          | 183   | 5951 | 248   | 6141 | 246  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3    | 190  | 209 | 230 | 255 | 275 | 287 | 292 | 288 | 277 | 264 | 256 | 254 | 258 | 272 | 291 | 306 | 317 | 322 | 314 | 297 | 275 | 250 | 233          | 222   | 6434 | 268   | 6656 | 266  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4    | 222  | 235 | 255 | 276 | 293 | 304 | 304 | 296 | 281 | 261 | 245 | 235 | 232 | 244 | 261 | 277 | 293 | 300 | 296 | 281 | 257 | 229 | 204          | 189   | 6270 | 261   | 6457 | 258  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5    | 187  | 197 | 217 | 242 | 265 | 282 | 289 | 285 | 271 | 254 | 237 | 225 | 222 | 231 | 252 | 275 | 295 | 310 | 314 | 305 | 286 | 259 | 235          | 216   | 6151 | 256   | 6358 | 254  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6    | 207  | 212 | 230 | 254 | 276 | 295 | 304 | 300 | 285 | 265 | 243 | 224 | 214 | 217 | 234 | 256 | 280 | 299 | 307 | 307 | 293 | 266 | 240          | 219   | 6227 | 259   | 6431 | 257  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7    | 204  | 203 | 217 | 238 | 261 | 280 | 290 | 290 | 278 | 257 | 234 | 214 | 198 | 197 | 210 | 231 | 256 | 279 | 295 | 302 | 295 | 276 | 253          | 232   | 5990 | 250   | 6207 | 248  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8    | 217  | 211 | 219 | 239 | 260 | 280 | 294 | 297 | 291 | 274 | 251 | 229 | 211 | 203 | 211 | 228 | 251 | 278 | 299 | 310 | 312 | 302 | 283          | 264   | 6214 | 259   | 6465 | 259  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9    | 251  | 241 | 243 | 255 | 273 | 291 | 302 | 306 | 300 | 282 | 259 | 233 | 211 | 197 | 193 | 201 | 219 | 240 | 259 | 275 | 281 | 277 | 267          | 253   | 6109 | 255   | 6349 | 254  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10   | 240  | 231 | 230 | 235 | 250 | 265 | 274 | 279 | 276 | 265 | 245 | 222 | 200 | 184 | 174 | 176 | 187 | 203 | 222 | 239 | 252 | 257 | 255          | 250   | 5611 | 234   | 5856 | 234  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11   | 245  | 240 | 239 | 243 | 254 | 267 | 279 | 284 | 284 | 278 | 265 | 247 | 226 | 210 | 200 | 194 | 195 | 207 | 219 | 231 | 244 | 253 | 258          | 258   | 5820 | 243   | 6080 | 243  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12   | 260  | 261 | 261 | 265 | 271 | 279 | 286 | 289 | 288 | 284 | 277 | 264 | 246 | 231 | 220 | 209 | 203 | 204 | 207 | 215 | 223 | 231 | 240          | 249   | 5963 | 248   | 6219 | 249  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13   | 256  | 264 | 269 | 274 | 279 | 283 | 286 | 288 | 288 | 285 | 283 | 276 | 265 | 255 | 246 | 236 | 225 | 215 | 210 | 207 | 209 | 212 | 217          | 228   | 6056 | 252   | 6297 | 252  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14   | 241  | 253 | 267 | 275 | 279 | 282 | 280 | 278 | 276 | 272 | 270 | 269 | 265 | 261 | 258 | 251 | 240 | 227 | 216 | 205 | 195 | 193 | 198          | 209   | 5960 | 248   | 6185 | 247  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15   | 225  | 245 | 264 | 278 | 289 | 292 | 289 | 283 | 277 | 271 | 270 | 273 | 276 | 281 | 287 | 288 | 281 | 271 | 253 | 235 | 219 | 205 | 200          | 206   | 6258 | 261   | 6477 | 259  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16   | 219  | 240 | 263 | 280 | 295 | 300 | 293 | 282 | 272 | 261 | 256 | 259 | 266 | 276 | 289 | 298 | 299 | 290 | 274 | 252 | 230 | 210 | 196          | 197   | 6297 | 262   | 6506 | 260  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17   | 209  | 229 | 254 | 278 | 295 | 303 | 301 | 288 | 271 | 257 | 247 | 246 | 253 | 268 | 287 | 303 | 312 | 313 | 302 | 280 | 256 | 229 | 208          | 200   | 6389 | 266   | 6594 | 264  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18   | 205  | 223 | 246 | 268 | 288 | 299 | 297 | 284 | 261 | 239 | 223 | 213 | 216 | 233 | 256 | 277 | 295 | 304 | 298 | 281 | 256 | 226 | 201          | 186   | 6075 | 253   | 6258 | 250  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 19   | 183  | 196 | 217 | 240 | 263 | 276 | 278 | 268 | 247 | 224 | 203 | 190 | 190 | 205 | 232 | 259 | 282 | 300 | 305 | 297 | 279 | 250 | 224          | 207   | 5815 | 242   | 6013 | 241  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20   | 198  | 204 | 224 | 248 | 269 | 283 | 289 | 281 | 260 | 236 | 211 | 191 | 185 | 193 | 214 | 243 | 271 | 293 | 307 | 308 | 296 | 272 | 248          | 229   | 5953 | 248   | 6169 | 247  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 21   | 216  | 217 | 231 | 252 | 272 | 287 | 294 | 289 | 271 | 246 | 218 | 194 | 179 | 178 | 193 | 219 | 246 | 271 | 287 | 295 | 290 | 272 | 251          | 233   | 5901 | 246   | 6119 | 245  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 22   | 218  | 214 | 222 | 238 | 260 | 274 | 281 | 281 | 267 | 244 | 218 | 193 | 173 | 165 | 173 | 192 | 216 | 242 | 261 | 272 | 275 | 265 | 250          | 236   | 5630 | 235   | 5854 | 234  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 23   | 224  | 219 | 223 | 236 | 256 | 272 | 280 | 283 | 275 | 257 | 234 | 212 | 190 | 178 | 180 | 191 | 210 | 233 | 252 | 265 | 272 | 270 | 260          | 249   | 5721 | 238   | 5962 | 238  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 24   | 241  | 235 | 235 | 244 | 258 | 272 | 282 | 282 | 277 | 266 | 245 | 222 | 204 | 188 | 184 | 187 | 198 | 215 | 233 | 245 | 254 | 256 | 252          | 247   | 5722 | 238   | 5965 | 239  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 25   | 243  | 242 | 243 | 249 | 259 | 271 | 279 | 282 | 278 | 269 | 256 | 237 | 218 | 205 | 197 | 194 | 199 | 209 | 220 | 231 | 239 | 242 | 243          | 242   | 5747 | 239   | 5987 | 239  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 26   | 240  | 242 | 247 | 250 | 258 | 266 | 272 | 274 | 272 | 266 | 258 | 243 | 228 | 218 | 211 | 207 | 206 | 211 | 218 | 225 | 231 | 236 | 239          | 243   | 5761 | 240   | 6006 | 240  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 27   | 245  | 251 | 258 | 264 | 269 | 276 | 282 | 282 | 281 | 278 | 270 | 262 | 253 | 243 | 239 | 235 | 229 | 229 | 230 | 230 | 232 | 235 | 236          | 241   | 6050 | 252   | 6298 | 252  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 28   | 248  | 254 | 262 | 271 | 275 | 277 | 279 | 276 | 270 | 266 | 261 | 255 | 251 | 247 | 245 | 241 | 235 | 229 | 225 | 219 | 216 | 214 | 215          | 221   | 5952 | 248   | 6183 | 247  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 29   | 231  | 242 | 253 | 263 | 269 | 270 | 268 | 264 | 256 | 252 | 248 | 245 | 246 | 247 | 249 | 248 | 244 | 237 | 226 | 218 | 210 | 202 | 203          | 209   | 5800 | 242   | 6019 | 241  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 30   | 219  | 234 | 251 | 263 | 271 | 272 | 268 | 259 | 249 | 244 | 239 | 238 | 244 | 251 | 260 | 265 | 263 | 256 | 245 | 231 | 218 | 206 | 202          | 206   | 5854 | 244   | 6069 | 243  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1    | 215  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |              |       |      |       |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Monthly Mean | 249.4 | cm   |       |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Table 1. (Continued)

Station : Syowa Station  
 Latitude : 69° 00' 28" N  
 Longitude : 39° 34' 13" E  
 Duration : Oct. 1–Oct. 31, 2013  
 Unit : Centimeter

The zero of the tide gauge:  
 500 cm below Bench Mark No. 1040

| Date | Time |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |              | (24H) |      | (25H) |      |      |  |
|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------------|-------|------|-------|------|------|--|
|      | 0    | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22           | 23    | Sum  | Mean  | Sum  | Mean |  |
| 1    | 215  | 232 | 249 | 264 | 274 | 276 | 271 | 258 | 245 | 236 | 228 | 228 | 236 | 248 | 262 | 273 | 277 | 273 | 262 | 244 | 227 | 211 | 202          | 204   | 5895 | 246   | 6110 | 244  |  |
| 2    | 215  | 232 | 251 | 270 | 286 | 289 | 283 | 271 | 254 | 239 | 231 | 228 | 235 | 251 | 270 | 286 | 296 | 298 | 288 | 272 | 250 | 229 | 217          | 212   | 6153 | 256   | 6371 | 255  |  |
| 3    | 218  | 235 | 254 | 274 | 291 | 296 | 290 | 277 | 257 | 238 | 224 | 219 | 226 | 244 | 268 | 290 | 306 | 313 | 306 | 291 | 270 | 244 | 225          | 216   | 6272 | 261   | 6489 | 260  |  |
| 4    | 217  | 230 | 251 | 272 | 289 | 297 | 294 | 279 | 257 | 235 | 215 | 202 | 205 | 220 | 245 | 274 | 295 | 310 | 313 | 302 | 281 | 256 | 233          | 219   | 6191 | 258   | 6407 | 256  |  |
| 5    | 216  | 226 | 245 | 267 | 287 | 297 | 296 | 282 | 259 | 233 | 209 | 191 | 186 | 198 | 223 | 252 | 280 | 301 | 311 | 310 | 295 | 272 | 249          | 232   | 6117 | 255   | 6340 | 254  |  |
| 6    | 223  | 227 | 244 | 265 | 283 | 296 | 298 | 287 | 265 | 237 | 209 | 186 | 175 | 179 | 198 | 227 | 257 | 282 | 299 | 306 | 299 | 282 | 261          | 245   | 6030 | 251   | 6262 | 250  |  |
| 7    | 232  | 230 | 242 | 261 | 280 | 294 | 299 | 292 | 274 | 250 | 221 | 194 | 178 | 172 | 182 | 207 | 234 | 259 | 283 | 296 | 296 | 286 | 272          | 256   | 5990 | 250   | 6233 | 249  |  |
| 8    | 243  | 238 | 244 | 259 | 277 | 291 | 297 | 295 | 283 | 261 | 233 | 206 | 184 | 171 | 174 | 189 | 210 | 235 | 260 | 277 | 285 | 283 | 276          | 266   | 5937 | 247   | 6193 | 248  |  |
| 9    | 256  | 250 | 252 | 262 | 277 | 290 | 298 | 299 | 291 | 277 | 253 | 227 | 205 | 188 | 181 | 188 | 201 | 219 | 240 | 257 | 269 | 275 | 274          | 270   | 5999 | 250   | 6263 | 251  |  |
| 10   | 264  | 260 | 260 | 264 | 275 | 286 | 292 | 292 | 290 | 281 | 263 | 241 | 222 | 204 | 192 | 190 | 194 | 203 | 217 | 231 | 244 | 253 | 260          | 262   | 5940 | 248   | 6203 | 248  |  |
| 11   | 263  | 265 | 266 | 267 | 273 | 280 | 285 | 287 | 285 | 280 | 270 | 255 | 241 | 226 | 214 | 207 | 201 | 202 | 209 | 217 | 225 | 235 | 244          | 253   | 5950 | 248   | 6209 | 248  |  |
| 12   | 259  | 265 | 271 | 273 | 276 | 279 | 280 | 280 | 279 | 277 | 274 | 267 | 258 | 251 | 243 | 233 | 225 | 218 | 214 | 213 | 215 | 219 | 229          | 240   | 6038 | 252   | 6288 | 252  |  |
| 13   | 250  | 263 | 271 | 276 | 278 | 275 | 271 | 268 | 264 | 262 | 262 | 262 | 262 | 261 | 259 | 255 | 245 | 235 | 224 | 214 | 208 | 206 | 211          | 222   | 6004 | 250   | 6239 | 250  |  |
| 14   | 235  | 250 | 264 | 273 | 275 | 272 | 263 | 253 | 246 | 241 | 240 | 244 | 250 | 257 | 266 | 269 | 264 | 254 | 238 | 223 | 210 | 200 | 199          | 207   | 5893 | 246   | 6111 | 244  |  |
| 15   | 218  | 235 | 252 | 263 | 270 | 267 | 255 | 240 | 227 | 218 | 216 | 220 | 230 | 246 | 261 | 273 | 277 | 271 | 258 | 241 | 223 | 207 | 200          | 203   | 5771 | 240   | 5986 | 239  |  |
| 16   | 215  | 232 | 251 | 268 | 278 | 279 | 270 | 252 | 235 | 223 | 216 | 222 | 237 | 258 | 283 | 304 | 319 | 322 | 312 | 293 | 273 | 253 | 240          | 237   | 6272 | 261   | 6517 | 261  |  |
| 17   | 245  | 260 | 279 | 297 | 309 | 310 | 299 | 278 | 256 | 235 | 219 | 216 | 226 | 246 | 272 | 298 | 317 | 326 | 324 | 310 | 288 | 265 | 247          | 238   | 6560 | 273   | 6799 | 272  |  |
| 18   | 239  | 251 | 269 | 285 | 298 | 303 | 292 | 272 | 247 | 221 | 201 | 190 | 194 | 212 | 240 | 267 | 293 | 309 | 315 | 309 | 292 | 272 | 253          | 242   | 6266 | 261   | 6507 | 260  |  |
| 19   | 241  | 250 | 270 | 288 | 301 | 310 | 304 | 286 | 262 | 234 | 206 | 190 | 187 | 198 | 224 | 254 | 280 | 301 | 312 | 311 | 300 | 281 | 261          | 246   | 6297 | 262   | 6536 | 261  |  |
| 20   | 239  | 243 | 258 | 276 | 290 | 300 | 298 | 284 | 260 | 232 | 204 | 181 | 170 | 175 | 194 | 221 | 247 | 272 | 289 | 295 | 289 | 277 | 261          | 247   | 6002 | 250   | 6242 | 250  |  |
| 21   | 240  | 241 | 253 | 271 | 288 | 299 | 301 | 293 | 274 | 248 | 219 | 195 | 179 | 175 | 188 | 211 | 235 | 259 | 279 | 287 | 288 | 281 | 267          | 255   | 6026 | 251   | 6275 | 251  |  |
| 22   | 249  | 245 | 251 | 267 | 283 | 294 | 297 | 292 | 279 | 256 | 228 | 203 | 185 | 175 | 180 | 197 | 218 | 239 | 259 | 273 | 278 | 274 | 264          | 257   | 5943 | 248   | 6193 | 248  |  |
| 23   | 250  | 245 | 249 | 259 | 274 | 287 | 291 | 289 | 281 | 262 | 239 | 218 | 198 | 187 | 186 | 195 | 211 | 229 | 249 | 263 | 268 | 271 | 267          | 259   | 5927 | 247   | 6183 | 247  |  |
| 24   | 256  | 254 | 255 | 262 | 273 | 284 | 288 | 287 | 282 | 269 | 250 | 230 | 211 | 197 | 193 | 197 | 204 | 217 | 233 | 244 | 251 | 257 | 257          | 253   | 5904 | 246   | 6157 | 246  |  |
| 25   | 253  | 252 | 252 | 257 | 265 | 273 | 276 | 277 | 274 | 264 | 252 | 236 | 218 | 207 | 202 | 199 | 203 | 210 | 219 | 229 | 237 | 242 | 246          | 247   | 5790 | 241   | 6038 | 242  |  |
| 26   | 248  | 250 | 254 | 256 | 260 | 266 | 269 | 266 | 264 | 259 | 249 | 239 | 228 | 219 | 213 | 209 | 209 | 210 | 213 | 220 | 225 | 229 | 236          | 240   | 5731 | 239   | 5974 | 239  |  |
| 27   | 243  | 248 | 253 | 257 | 258 | 261 | 260 | 257 | 256 | 252 | 249 | 244 | 239 | 236 | 233 | 231 | 229 | 226 | 228 | 229 | 230 | 235 | 241          | 247   | 5842 | 243   | 6099 | 244  |  |
| 28   | 257  | 264 | 271 | 277 | 278 | 278 | 274 | 269 | 265 | 261 | 259 | 258 | 259 | 260 | 261 | 261 | 257 | 250 | 245 | 239 | 234 | 234 | 237          | 243   | 6191 | 258   | 6442 | 258  |  |
| 29   | 251  | 262 | 269 | 273 | 275 | 271 | 261 | 253 | 245 | 236 | 235 | 238 | 242 | 250 | 257 | 261 | 260 | 253 | 243 | 234 | 226 | 220 | 221          | 228   | 5964 | 249   | 6203 | 248  |  |
| 30   | 239  | 250 | 262 | 270 | 272 | 268 | 257 | 244 | 232 | 222 | 219 | 223 | 232 | 246 | 261 | 270 | 274 | 269 | 259 | 245 | 231 | 222 | 219          | 222   | 5908 | 246   | 6142 | 246  |  |
| 31   | 234  | 246 | 261 | 271 | 274 | 270 | 257 | 238 | 221 | 207 | 200 | 202 | 214 | 232 | 252 | 268 | 278 | 277 | 267 | 253 | 236 | 219 | 210          | 212   | 5799 | 242   | 6019 | 241  |  |
| 1    | 220  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |              |       |      |       |      |      |  |
|      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Monthly Mean | 250.8 | cm   |       |      |      |  |

Table 1. (Continued)

Station : Syowa Station  
 Latitude : 69° 00' 28" N  
 Longitude : 39° 34' 13" E  
 Duration : Nov. 1– Nov. 30, 2013  
 Unit : Centimeter

The zero of the tide gauge:  
 500 cm below Bench Mark No. 1040

| Date | Time |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |              | (24H) |      | (25H) |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------------|-------|------|-------|------|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
|      | 0    | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22           | 23    | Sum  | Mean  | Sum  | Mean |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1    | 220  | 234 | 252 | 264 | 270 | 268 | 254 | 233 | 211 | 191 | 182 | 181 | 191 | 215 | 241 | 264 | 283 | 290 | 287 | 275 | 254 | 237 | 224          | 217   | 5738 | 239   | 5963 | 239  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2    | 225  | 241 | 257 | 271 | 279 | 279 | 266 | 243 | 219 | 194 | 176 | 169 | 176 | 198 | 228 | 258 | 283 | 299 | 304 | 295 | 276 | 258 | 243          | 233   | 5870 | 245   | 6106 | 244  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3    | 236  | 249 | 265 | 281 | 294 | 298 | 288 | 267 | 240 | 211 | 187 | 173 | 173 | 190 | 218 | 251 | 281 | 302 | 315 | 314 | 301 | 283 | 265          | 250   | 6132 | 256   | 6379 | 255  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4    | 247  | 257 | 270 | 286 | 300 | 306 | 301 | 284 | 255 | 223 | 193 | 171 | 161 | 170 | 193 | 223 | 254 | 282 | 300 | 308 | 302 | 288 | 271          | 255   | 6100 | 254   | 6346 | 254  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5    | 246  | 248 | 258 | 274 | 289 | 296 | 295 | 283 | 259 | 226 | 193 | 165 | 145 | 144 | 160 | 183 | 213 | 243 | 267 | 283 | 285 | 277 | 265          | 253   | 5750 | 240   | 5993 | 240  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6    | 243  | 240 | 248 | 262 | 278 | 289 | 293 | 286 | 270 | 245 | 212 | 183 | 160 | 150 | 156 | 172 | 197 | 225 | 249 | 269 | 280 | 281 | 276          | 268   | 5732 | 239   | 5991 | 240  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7    | 259  | 254 | 258 | 267 | 278 | 290 | 296 | 293 | 284 | 265 | 237 | 210 | 186 | 167 | 162 | 169 | 183 | 202 | 224 | 242 | 256 | 263 | 264          | 260   | 5769 | 240   | 6025 | 241  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8    | 256  | 251 | 249 | 254 | 263 | 274 | 280 | 281 | 278 | 267 | 248 | 227 | 206 | 187 | 177 | 174 | 180 | 192 | 207 | 223 | 237 | 247 | 254          | 254   | 5666 | 236   | 5920 | 237  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9    | 254  | 255 | 253 | 252 | 257 | 266 | 272 | 275 | 275 | 270 | 262 | 249 | 233 | 221 | 209 | 201 | 200 | 202 | 209 | 218 | 228 | 238 | 246          | 252   | 5797 | 242   | 6055 | 242  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10   | 258  | 258 | 256 | 256 | 254 | 254 | 257 | 258 | 258 | 258 | 257 | 251 | 244 | 238 | 232 | 224 | 218 | 213 | 209 | 213 | 217 | 222 | 231          | 240   | 5776 | 241   | 6023 | 241  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11   | 247  | 252 | 255 | 252 | 247 | 244 | 240 | 236 | 236 | 236 | 239 | 243 | 246 | 249 | 249 | 246 | 242 | 232 | 224 | 222 | 219 | 221 | 228          | 236   | 5741 | 239   | 5987 | 239  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12   | 246  | 255 | 260 | 261 | 256 | 248 | 237 | 229 | 224 | 222 | 224 | 232 | 242 | 253 | 260 | 265 | 263 | 255 | 244 | 233 | 225 | 222 | 222          | 229   | 5807 | 242   | 6048 | 242  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13   | 241  | 251 | 260 | 263 | 261 | 252 | 235 | 221 | 210 | 201 | 203 | 211 | 223 | 241 | 258 | 272 | 278 | 274 | 265 | 254 | 241 | 233 | 230          | 234   | 5812 | 242   | 6057 | 242  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14   | 245  | 257 | 266 | 273 | 273 | 264 | 247 | 227 | 208 | 194 | 190 | 196 | 209 | 229 | 251 | 271 | 284 | 287 | 280 | 268 | 252 | 239 | 233          | 233   | 5876 | 245   | 6116 | 245  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15   | 240  | 252 | 266 | 273 | 276 | 270 | 252 | 231 | 207 | 186 | 175 | 173 | 185 | 208 | 231 | 256 | 277 | 284 | 283 | 274 | 259 | 244 | 233          | 230   | 5765 | 240   | 6002 | 240  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16   | 237  | 247 | 261 | 272 | 277 | 274 | 259 | 236 | 211 | 185 | 166 | 161 | 168 | 188 | 215 | 243 | 266 | 282 | 288 | 284 | 273 | 259 | 245          | 238   | 5735 | 239   | 5976 | 239  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17   | 241  | 251 | 266 | 278 | 287 | 288 | 275 | 255 | 229 | 201 | 177 | 166 | 166 | 180 | 208 | 236 | 262 | 283 | 296 | 296 | 288 | 278 | 266          | 257   | 5930 | 247   | 6185 | 247  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18   | 255  | 263 | 278 | 294 | 305 | 309 | 302 | 285 | 260 | 231 | 203 | 184 | 178 | 186 | 207 | 234 | 260 | 283 | 300 | 305 | 300 | 290 | 277          | 266   | 6255 | 261   | 6518 | 261  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 19   | 263  | 266 | 278 | 292 | 305 | 312 | 308 | 296 | 274 | 246 | 217 | 193 | 180 | 180 | 193 | 217 | 243 | 264 | 282 | 292 | 290 | 282 | 271          | 260   | 6204 | 259   | 6456 | 258  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20   | 252  | 251 | 258 | 271 | 285 | 292 | 292 | 284 | 265 | 238 | 210 | 185 | 168 | 164 | 172 | 191 | 215 | 237 | 257 | 270 | 275 | 272 | 262          | 254   | 5820 | 243   | 6070 | 243  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 21   | 250  | 246 | 251 | 261 | 274 | 286 | 289 | 284 | 274 | 253 | 228 | 207 | 187 | 177 | 179 | 191 | 209 | 231 | 250 | 264 | 272 | 273 | 266          | 261   | 5863 | 244   | 6119 | 245  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 22   | 256  | 252 | 253 | 260 | 272 | 283 | 288 | 287 | 281 | 266 | 245 | 225 | 207 | 195 | 193 | 201 | 215 | 231 | 249 | 264 | 271 | 277 | 275          | 268   | 6014 | 251   | 6279 | 251  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 23   | 265  | 262 | 261 | 263 | 272 | 281 | 285 | 287 | 283 | 272 | 258 | 239 | 222 | 212 | 206 | 207 | 217 | 228 | 240 | 255 | 264 | 269 | 271          | 269   | 6088 | 254   | 6355 | 254  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 24   | 267  | 265 | 264 | 263 | 267 | 274 | 277 | 277 | 277 | 271 | 261 | 248 | 235 | 227 | 221 | 219 | 222 | 228 | 237 | 248 | 257 | 262 | 266          | 267   | 6100 | 254   | 6367 | 255  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 25   | 267  | 266 | 265 | 262 | 262 | 263 | 264 | 266 | 265 | 262 | 260 | 253 | 246 | 241 | 235 | 233 | 234 | 235 | 240 | 247 | 253 | 260 | 265          | 269   | 6113 | 255   | 6384 | 255  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 26   | 271  | 271 | 271 | 267 | 264 | 263 | 259 | 258 | 257 | 256 | 256 | 255 | 255 | 254 | 253 | 253 | 250 | 246 | 246 | 247 | 249 | 253 | 260          | 265   | 6179 | 257   | 6449 | 258  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 27   | 270  | 273 | 276 | 272 | 268 | 262 | 252 | 247 | 243 | 239 | 242 | 246 | 251 | 256 | 260 | 263 | 261 | 255 | 248 | 244 | 243 | 243 | 246          | 253   | 6113 | 255   | 6372 | 255  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 28   | 259  | 264 | 269 | 267 | 262 | 253 | 240 | 228 | 220 | 215 | 216 | 223 | 235 | 248 | 261 | 269 | 271 | 268 | 261 | 252 | 246 | 243 | 244          | 250   | 5964 | 249   | 6221 | 249  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 29   | 257  | 268 | 275 | 277 | 275 | 264 | 248 | 232 | 218 | 210 | 207 | 215 | 230 | 248 | 267 | 285 | 293 | 292 | 285 | 273 | 262 | 254 | 251          | 253   | 6139 | 256   | 6399 | 256  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 30   | 260  | 271 | 280 | 283 | 280 | 271 | 252 | 229 | 208 | 193 | 184 | 187 | 204 | 225 | 250 | 276 | 293 | 299 | 296 | 286 | 272 | 258 | 251          | 250   | 6058 | 252   | 6313 | 253  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1    | 255  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |              |       |      |       |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Monthly Mean | 247.1 | cm   |       |      |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Table 1. (Continued)

Station : Syowa Station  
 Latitude : 69° 00' 28" N  
 Longitude : 39° 34' 13" E  
 Duration : Dec. 1–Dec. 31, 2013  
 Unit : Centimeter

The zero of the tide gauge:  
 500 cm below Bench Mark No. 1040

| Date | Time |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |              | (24H) |      | (25H) |      |      |  |
|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------------|-------|------|-------|------|------|--|
|      | 0    | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22           | 23    | Sum  | Mean  | Sum  | Mean |  |
| 1    | 255  | 267 | 278 | 284 | 285 | 278 | 259 | 233 | 207 | 182 | 167 | 165 | 176 | 200 | 227 | 259 | 285 | 299 | 303 | 297 | 283 | 268 | 256          | 251   | 5964 | 249   | 6219 | 249  |  |
| 2    | 255  | 266 | 278 | 289 | 293 | 289 | 276 | 250 | 218 | 189 | 165 | 152 | 157 | 176 | 203 | 237 | 268 | 291 | 305 | 305 | 295 | 282 | 268          | 258   | 5965 | 249   | 6224 | 249  |  |
| 3    | 259  | 267 | 280 | 294 | 304 | 306 | 296 | 276 | 245 | 211 | 183 | 162 | 154 | 166 | 190 | 222 | 256 | 284 | 304 | 313 | 310 | 299 | 286          | 274   | 6141 | 256   | 6410 | 256  |  |
| 4    | 269  | 271 | 283 | 297 | 308 | 315 | 312 | 296 | 270 | 237 | 203 | 176 | 158 | 158 | 173 | 198 | 230 | 259 | 285 | 301 | 306 | 301 | 289          | 277   | 6172 | 257   | 6441 | 258  |  |
| 5    | 269  | 265 | 274 | 288 | 300 | 312 | 314 | 307 | 289 | 260 | 228 | 196 | 172 | 162 | 166 | 183 | 209 | 236 | 262 | 283 | 295 | 297 | 290          | 282   | 6139 | 256   | 6411 | 256  |  |
| 6    | 272  | 266 | 269 | 278 | 293 | 306 | 312 | 316 | 308 | 287 | 260 | 232 | 207 | 189 | 184 | 193 | 209 | 230 | 254 | 274 | 288 | 296 | 294          | 286   | 6303 | 263   | 6581 | 263  |  |
| 7    | 278  | 269 | 264 | 268 | 278 | 291 | 300 | 304 | 302 | 292 | 273 | 250 | 227 | 207 | 194 | 193 | 198 | 211 | 229 | 245 | 259 | 269 | 271          | 268   | 6140 | 256   | 6401 | 256  |  |
| 8    | 261  | 254 | 247 | 242 | 247 | 258 | 265 | 271 | 277 | 276 | 268 | 255 | 240 | 226 | 213 | 207 | 208 | 214 | 226 | 238 | 249 | 260 | 267          | 268   | 5937 | 247   | 6203 | 248  |  |
| 9    | 266  | 260 | 253 | 246 | 242 | 245 | 251 | 256 | 261 | 264 | 264 | 261 | 255 | 248 | 241 | 234 | 230 | 231 | 235 | 241 | 249 | 256 | 264          | 268   | 6021 | 251   | 6289 | 252  |  |
| 10   | 268  | 267 | 260 | 251 | 245 | 240 | 237 | 239 | 242 | 245 | 249 | 254 | 256 | 256 | 256 | 253 | 248 | 246 | 243 | 242 | 246 | 251 | 254          | 260   | 6008 | 250   | 6271 | 251  |  |
| 11   | 263  | 262 | 257 | 251 | 241 | 230 | 221 | 215 | 214 | 214 | 217 | 226 | 234 | 242 | 250 | 255 | 255 | 251 | 246 | 242 | 239 | 241 | 244          | 248   | 5758 | 240   | 6012 | 240  |  |
| 12   | 254  | 257 | 256 | 253 | 245 | 233 | 219 | 208 | 201 | 198 | 201 | 210 | 222 | 237 | 253 | 266 | 273 | 274 | 269 | 263 | 258 | 256 | 257          | 260   | 5823 | 243   | 6089 | 244  |  |
| 13   | 266  | 272 | 274 | 274 | 268 | 257 | 239 | 220 | 205 | 197 | 194 | 198 | 212 | 229 | 248 | 268 | 281 | 285 | 283 | 278 | 269 | 261 | 259          | 261   | 5998 | 250   | 6263 | 251  |  |
| 14   | 265  | 272 | 279 | 279 | 275 | 265 | 247 | 224 | 203 | 186 | 176 | 177 | 188 | 205 | 226 | 249 | 268 | 277 | 277 | 273 | 264 | 253 | 247          | 247   | 5822 | 243   | 6075 | 243  |  |
| 15   | 253  | 260 | 270 | 275 | 274 | 270 | 254 | 232 | 209 | 187 | 171 | 168 | 174 | 191 | 217 | 242 | 264 | 280 | 286 | 284 | 278 | 268 | 257          | 255   | 5819 | 242   | 6078 | 243  |  |
| 16   | 259  | 267 | 278 | 287 | 293 | 291 | 278 | 257 | 232 | 206 | 186 | 173 | 175 | 191 | 213 | 240 | 265 | 283 | 294 | 296 | 290 | 279 | 268          | 262   | 6063 | 253   | 6323 | 253  |  |
| 17   | 260  | 266 | 278 | 289 | 296 | 298 | 290 | 270 | 244 | 218 | 192 | 174 | 169 | 178 | 197 | 224 | 250 | 272 | 287 | 292 | 288 | 278 | 267          | 258   | 6035 | 251   | 6288 | 252  |  |
| 18   | 253  | 256 | 267 | 279 | 290 | 296 | 292 | 278 | 255 | 227 | 199 | 176 | 165 | 167 | 181 | 206 | 234 | 256 | 273 | 283 | 282 | 273 | 263          | 253   | 5904 | 246   | 6151 | 246  |  |
| 19   | 247  | 248 | 256 | 268 | 282 | 291 | 292 | 283 | 265 | 239 | 212 | 187 | 170 | 168 | 178 | 198 | 224 | 249 | 268 | 280 | 285 | 279 | 269          | 260   | 5898 | 246   | 6151 | 246  |  |
| 20   | 253  | 250 | 255 | 266 | 280 | 291 | 296 | 292 | 279 | 256 | 229 | 204 | 184 | 176 | 181 | 195 | 217 | 241 | 261 | 276 | 284 | 281 | 272          | 264   | 5983 | 249   | 6240 | 250  |  |
| 21   | 257  | 250 | 251 | 259 | 272 | 286 | 292 | 292 | 284 | 267 | 243 | 219 | 198 | 186 | 185 | 194 | 212 | 233 | 253 | 268 | 278 | 278 | 272          | 264   | 5993 | 250   | 6249 | 250  |  |
| 22   | 256  | 249 | 246 | 251 | 261 | 272 | 280 | 285 | 283 | 271 | 255 | 234 | 215 | 203 | 197 | 201 | 213 | 229 | 246 | 261 | 270 | 273 | 270          | 261   | 5982 | 249   | 6235 | 249  |  |
| 23   | 253  | 246 | 240 | 240 | 246 | 256 | 263 | 269 | 271 | 265 | 253 | 237 | 223 | 212 | 205 | 206 | 213 | 223 | 239 | 252 | 263 | 268 | 268          | 264   | 5875 | 245   | 6131 | 245  |  |
| 24   | 256  | 249 | 243 | 239 | 242 | 248 | 253 | 259 | 262 | 261 | 258 | 249 | 238 | 230 | 225 | 222 | 224 | 232 | 242 | 251 | 261 | 267 | 269          | 268   | 5948 | 248   | 6210 | 248  |  |
| 25   | 262  | 255 | 250 | 242 | 237 | 239 | 240 | 242 | 247 | 249 | 249 | 248 | 243 | 237 | 234 | 233 | 233 | 235 | 239 | 244 | 250 | 255 | 258          | 259   | 5880 | 245   | 6137 | 245  |  |
| 26   | 257  | 252 | 246 | 239 | 230 | 224 | 221 | 220 | 222 | 224 | 226 | 230 | 236 | 238 | 238 | 241 | 241 | 242 | 242 | 243 | 243 | 248 | 253          | 254   | 5710 | 238   | 5967 | 239  |  |
| 27   | 257  | 257 | 251 | 245 | 238 | 226 | 216 | 212 | 209 | 208 | 212 | 220 | 231 | 243 | 252 | 259 | 263 | 261 | 257 | 256 | 254 | 253 | 255          | 257   | 5792 | 241   | 6052 | 242  |  |
| 28   | 260  | 262 | 259 | 252 | 244 | 231 | 213 | 201 | 192 | 186 | 187 | 196 | 211 | 228 | 245 | 260 | 270 | 271 | 268 | 262 | 256 | 252 | 251          | 254   | 5711 | 238   | 5971 | 239  |  |
| 29   | 260  | 264 | 267 | 265 | 259 | 246 | 227 | 208 | 191 | 179 | 177 | 183 | 199 | 221 | 247 | 272 | 288 | 297 | 296 | 289 | 280 | 272 | 266          | 266   | 5919 | 247   | 6189 | 248  |  |
| 30   | 270  | 276 | 282 | 285 | 281 | 269 | 248 | 224 | 198 | 177 | 166 | 164 | 175 | 197 | 226 | 256 | 283 | 299 | 304 | 301 | 292 | 279 | 270          | 267   | 5989 | 250   | 6260 | 250  |  |
| 31   | 271  | 279 | 289 | 297 | 300 | 294 | 277 | 252 | 224 | 194 | 170 | 159 | 164 | 183 | 211 | 243 | 274 | 298 | 310 | 311 | 302 | 288 | 276          | 265   | 6131 | 255   | 6397 | 256  |  |
| 1    | 266  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |              |       |      |       |      |      |  |
|      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Monthly Mean | 248.4 | cm   |       |      |      |  |

Table 1. (Continued)

Station : Syowa Station  
 Latitude : 69° 00' 28" N  
 Longitude : 39° 34' 13" E  
 Duration : Jan. 1–Jan. 31, 2014  
 Unit : Centimeter

The zero of the tide gauge:  
 500 cm below Bench Mark No. 1040

| Date | Time |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |              | (24H) |      | (25H) |      |      |  |
|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------------|-------|------|-------|------|------|--|
|      | 0    | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22           | 23    | Sum  | Mean  | Sum  | Mean |  |
| 1    | 266  | 274 | 284 | 295 | 304 | 302 | 291 | 269 | 238 | 204 | 173 | 151 | 146 | 156 | 181 | 214 | 248 | 278 | 300 | 309 | 307 | 298 | 284          | 274   | 6046 | 252   | 6315 | 253  |  |
| 2    | 269  | 273 | 285 | 302 | 314 | 321 | 319 | 305 | 278 | 242 | 208 | 177 | 158 | 159 | 174 | 199 | 230 | 261 | 285 | 299 | 302 | 293 | 279          | 265   | 6197 | 258   | 6450 | 258  |  |
| 3    | 253  | 249 | 260 | 276 | 292 | 305 | 310 | 306 | 287 | 257 | 222 | 189 | 164 | 153 | 156 | 175 | 201 | 229 | 255 | 272 | 281 | 279 | 266          | 252   | 5889 | 245   | 6128 | 245  |  |
| 4    | 239  | 229 | 232 | 246 | 263 | 279 | 291 | 296 | 288 | 270 | 242 | 210 | 186 | 169 | 164 | 175 | 195 | 218 | 242 | 260 | 273 | 274 | 266          | 251   | 5758 | 240   | 5994 | 240  |  |
| 5    | 236  | 225 | 220 | 224 | 240 | 259 | 272 | 282 | 285 | 277 | 258 | 235 | 211 | 192 | 182 | 186 | 197 | 215 | 235 | 252 | 264 | 267 | 262          | 252   | 5728 | 239   | 5965 | 239  |  |
| 6    | 237  | 224 | 212 | 209 | 218 | 232 | 247 | 257 | 264 | 266 | 259 | 242 | 227 | 213 | 200 | 198 | 203 | 215 | 229 | 244 | 255 | 261 | 262          | 255   | 5629 | 235   | 5871 | 235  |  |
| 7    | 242  | 231 | 219 | 211 | 210 | 218 | 229 | 240 | 249 | 255 | 255 | 249 | 243 | 235 | 229 | 225 | 227 | 233 | 241 | 252 | 262 | 267 | 267          | 265   | 5754 | 240   | 6012 | 240  |  |
| 8    | 258  | 246 | 236 | 226 | 218 | 217 | 221 | 227 | 234 | 238 | 242 | 244 | 242 | 241 | 241 | 240 | 241 | 244 | 247 | 253 | 259 | 263 | 264          | 264   | 5806 | 242   | 6065 | 243  |  |
| 9    | 259  | 250 | 244 | 234 | 223 | 218 | 215 | 214 | 219 | 223 | 227 | 234 | 242 | 249 | 257 | 264 | 269 | 269 | 270 | 272 | 274 | 279 | 279          | 278   | 5962 | 248   | 6239 | 250  |  |
| 10   | 277  | 274 | 267 | 260 | 250 | 240 | 228 | 221 | 216 | 214 | 216 | 221 | 229 | 241 | 252 | 264 | 271 | 274 | 275 | 273 | 270 | 270 | 270          | 269   | 6042 | 252   | 6311 | 252  |  |
| 11   | 269  | 269 | 266 | 263 | 256 | 244 | 229 | 216 | 205 | 195 | 194 | 199 | 207 | 222 | 240 | 254 | 268 | 277 | 278 | 273 | 271 | 266 | 262          | 264   | 5887 | 245   | 6154 | 246  |  |
| 12   | 267  | 267 | 270 | 269 | 264 | 256 | 240 | 221 | 205 | 191 | 182 | 182 | 190 | 206 | 226 | 247 | 263 | 275 | 279 | 276 | 270 | 262 | 256          | 255   | 5819 | 242   | 6077 | 243  |  |
| 13   | 258  | 261 | 265 | 270 | 270 | 264 | 250 | 229 | 207 | 189 | 174 | 168 | 174 | 191 | 212 | 237 | 259 | 273 | 281 | 281 | 273 | 263 | 254          | 253   | 5756 | 240   | 6011 | 240  |  |
| 14   | 255  | 258 | 268 | 278 | 280 | 279 | 268 | 247 | 225 | 201 | 181 | 171 | 173 | 188 | 210 | 236 | 261 | 279 | 290 | 292 | 285 | 274 | 266          | 259   | 5924 | 247   | 6181 | 247  |  |
| 15   | 257  | 263 | 275 | 285 | 293 | 295 | 286 | 269 | 244 | 216 | 192 | 173 | 167 | 179 | 198 | 224 | 250 | 271 | 283 | 287 | 283 | 271 | 259          | 250   | 5970 | 249   | 6216 | 249  |  |
| 16   | 246  | 249 | 261 | 275 | 286 | 292 | 288 | 273 | 250 | 222 | 193 | 172 | 162 | 166 | 184 | 209 | 234 | 259 | 275 | 280 | 278 | 267 | 253          | 241   | 5815 | 242   | 6050 | 242  |  |
| 17   | 235  | 237 | 247 | 262 | 277 | 288 | 289 | 282 | 263 | 234 | 206 | 181 | 166 | 166 | 178 | 201 | 229 | 253 | 272 | 283 | 282 | 272 | 259          | 246   | 5808 | 242   | 6044 | 242  |  |
| 18   | 236  | 234 | 241 | 257 | 276 | 290 | 296 | 293 | 281 | 257 | 227 | 204 | 185 | 178 | 186 | 204 | 229 | 254 | 273 | 285 | 287 | 277 | 263          | 250   | 5963 | 248   | 6202 | 248  |  |
| 19   | 239  | 231 | 234 | 246 | 263 | 280 | 289 | 290 | 282 | 263 | 238 | 212 | 192 | 181 | 181 | 194 | 216 | 238 | 257 | 271 | 276 | 270 | 256          | 243   | 5842 | 243   | 6074 | 243  |  |
| 20   | 232  | 222 | 219 | 229 | 244 | 262 | 275 | 280 | 278 | 267 | 247 | 224 | 203 | 191 | 188 | 196 | 213 | 235 | 254 | 268 | 275 | 273 | 262          | 249   | 5786 | 241   | 6023 | 241  |  |
| 21   | 237  | 226 | 219 | 222 | 233 | 251 | 264 | 272 | 276 | 270 | 257 | 240 | 222 | 208 | 204 | 208 | 219 | 236 | 254 | 266 | 274 | 276 | 268          | 254   | 5856 | 244   | 6098 | 244  |  |
| 22   | 242  | 229 | 218 | 215 | 221 | 233 | 246 | 256 | 264 | 264 | 257 | 246 | 233 | 223 | 217 | 218 | 225 | 234 | 250 | 263 | 268 | 271 | 268          | 257   | 5818 | 242   | 6062 | 242  |  |
| 23   | 244  | 233 | 223 | 216 | 218 | 224 | 232 | 243 | 252 | 256 | 256 | 252 | 245 | 240 | 237 | 239 | 241 | 247 | 259 | 267 | 272 | 275 | 273          | 266   | 5910 | 246   | 6165 | 247  |  |
| 24   | 255  | 243 | 232 | 222 | 216 | 217 | 219 | 223 | 231 | 237 | 241 | 243 | 245 | 246 | 249 | 252 | 254 | 258 | 263 | 269 | 274 | 274 | 274          | 272   | 5909 | 246   | 6174 | 247  |  |
| 25   | 265  | 256 | 249 | 238 | 227 | 221 | 216 | 213 | 215 | 219 | 224 | 232 | 240 | 248 | 256 | 264 | 269 | 269 | 270 | 272 | 272 | 271 | 270          | 269   | 5945 | 248   | 6212 | 248  |  |
| 26   | 267  | 262 | 256 | 246 | 235 | 225 | 211 | 200 | 196 | 194 | 196 | 206 | 219 | 235 | 251 | 266 | 276 | 279 | 281 | 278 | 272 | 270 | 268          | 265   | 5854 | 244   | 6121 | 245  |  |
| 27   | 267  | 268 | 266 | 261 | 253 | 242 | 224 | 208 | 195 | 184 | 181 | 189 | 202 | 224 | 248 | 269 | 286 | 296 | 297 | 292 | 285 | 277 | 271          | 271   | 5956 | 248   | 6229 | 249  |  |
| 28   | 273  | 278 | 282 | 281 | 278 | 268 | 247 | 224 | 201 | 181 | 169 | 167 | 177 | 198 | 225 | 254 | 277 | 292 | 299 | 293 | 282 | 273 | 262          | 258   | 5939 | 247   | 6201 | 248  |  |
| 29   | 262  | 267 | 276 | 284 | 286 | 281 | 264 | 238 | 208 | 180 | 158 | 146 | 149 | 168 | 193 | 225 | 257 | 280 | 292 | 291 | 282 | 269 | 254          | 245   | 5755 | 240   | 6003 | 240  |  |
| 30   | 248  | 256 | 269 | 283 | 294 | 298 | 288 | 265 | 235 | 202 | 171 | 149 | 143 | 153 | 175 | 208 | 241 | 268 | 286 | 291 | 283 | 266 | 251          | 237   | 5760 | 240   | 5991 | 240  |  |
| 31   | 231  | 238 | 254 | 272 | 290 | 302 | 300 | 286 | 261 | 227 | 192 | 163 | 147 | 148 | 165 | 193 | 224 | 251 | 273 | 283 | 280 | 265 | 246          | 228   | 5719 | 238   | 5937 | 237  |  |
| 1    | 218  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |              |       |      |       |      |      |  |
|      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Monthly Mean | 244.4 | cm   |       |      |      |  |



Table 2. Harmonic constants at Syowa Station

Syowa Station (Nishi-no-ura)

Position: Lat. 69-00-28S, Lon. 39-34-13E

Epoch and Duration of Analysis:

Epoch: 2013/01/28

Central Date: 2013/07/31

Duration in Days: 369 days

Missing Hours: 0 hours

Mean Sea Level: 254.7 cm

Harmonic Constants:

|                  | H (cm) | K<br>(deg.) | G<br>(deg.) |                  | H (cm) | K<br>(deg.) | G<br>(deg.) |
|------------------|--------|-------------|-------------|------------------|--------|-------------|-------------|
| SA               | 9.57   | 39.07       | 39.19       | M <sub>2</sub>   | 24.96  | 160.19      | 168.00      |
| SSA              | 4.71   | 40.95       | 41.20       | MKS <sub>2</sub> | 0.08   | 189.01      | 197.07      |
| MM               | 2.07   | 177.09      | 178.72      | λ <sub>2</sub>   | 0.17   | 126.73      | 135.96      |
| MSF              | 1.02   | 348.88      | 351.93      | L <sub>2</sub>   | 0.53   | 125.89      | 135.33      |
| MF               | 2.31   | 140.29      | 143.58      | T <sub>2</sub>   | 1.37   | 163.73      | 174.46      |
| 2Q <sub>1</sub>  | 1.07   | 334.43      | 333.42      | S <sub>2</sub>   | 20.14  | 175.70      | 186.56      |
| σ <sub>1</sub>   | 0.99   | 340.86      | 340.07      | R <sub>2</sub>   | 0.15   | 208.15      | 219.13      |
| Q <sub>1</sub>   | 6.02   | 340.28      | 340.90      | K <sub>2</sub>   | 5.66   | 174.72      | 185.83      |
| ρ <sub>1</sub>   | 1.13   | 332.83      | 333.68      | MSN <sub>2</sub> | 0.11   | 22.79       | 35.29       |
| O <sub>1</sub>   | 24.67  | 350.48      | 352.74      | KJ <sub>2</sub>  | 0.39   | 18.93       | 31.67       |
| MP <sub>1</sub>  | 0.18   | 18.27       | 20.78       | 2SM <sub>2</sub> | 0.17   | 121.13      | 135.04      |
| M <sub>1</sub>   | 0.62   | 292.89      | 296.80      | MO <sub>3</sub>  | 0.08   | 119.73      | 129.80      |
| χ <sub>1</sub>   | 0.34   | 334.09      | 338.23      | M <sub>3</sub>   | 0.25   | 262.32      | 274.04      |
| π <sub>1</sub>   | 0.42   | 13.26       | 18.45       | SO <sub>3</sub>  | 0.04   | 291.98      | 305.10      |
| P <sub>1</sub>   | 7.47   | 356.32      | 361.63      | MK <sub>3</sub>  | 0.07   | 250.85      | 264.22      |
| S <sub>1</sub>   | 0.34   | 58.21       | 63.64       | SK <sub>3</sub>  | 0.46   | 346.02      | 362.43      |
| K <sub>1</sub>   | 22.26  | 357.26      | 362.81      | MN <sub>4</sub>  | 0.23   | 42.49       | 56.48       |
| ψ <sub>1</sub>   | 0.25   | 46.51       | 52.19       | M <sub>4</sub>   | 0.38   | 102.27      | 117.89      |
| φ <sub>1</sub>   | 0.34   | 335.56      | 341.35      | SN <sub>4</sub>  | 0.04   | 117.12      | 134.16      |
| θ <sub>1</sub>   | 0.15   | 347.60      | 354.57      | MS <sub>4</sub>  | 0.15   | 173.18      | 191.85      |
| J <sub>1</sub>   | 1.11   | 343.80      | 350.99      | MK <sub>4</sub>  | 0.08   | 185.52      | 204.44      |
| SO <sub>1</sub>  | 0.24   | 12.28       | 20.88       | S <sub>4</sub>   | 0.06   | 207.35      | 229.07      |
| OO <sub>1</sub>  | 0.45   | 337.74      | 346.58      | SK <sub>4</sub>  | 0.10   | 205.88      | 227.84      |
| OQ <sub>2</sub>  | 0.06   | 159.33      | 162.21      | 2MN <sub>6</sub> | 0.06   | 50.22       | 72.03       |
| MNS <sub>2</sub> | 0.05   | 24.95       | 28.08       | M <sub>6</sub>   | 0.11   | 98.33       | 121.76      |
| 2N <sub>2</sub>  | 0.39   | 152.80      | 157.35      | MSN <sub>6</sub> | 0.09   | 141.26      | 166.11      |
| μ <sub>2</sub>   | 0.51   | 104.44      | 109.20      | 2MS <sub>6</sub> | 0.31   | 188.42      | 214.91      |
| N <sub>2</sub>   | 4.55   | 157.52      | 163.70      | 2MK <sub>6</sub> | 0.09   | 193.67      | 220.40      |
| v <sub>2</sub>   | 0.79   | 161.28      | 167.68      | 2SM <sub>6</sub> | 0.09   | 253.51      | 283.04      |
| OP <sub>2</sub>  | 0.11   | 278.05      | 285.62      | MSK <sub>6</sub> | 0.07   | 244.22      | 274.00      |

Table 3. Hourly tidal observation at Skallen from January 14 to January 31, 2014 (time is LMT (UT+3 hours)).

Station : Skallen  
 Latitude : 69° 40' 27" S  
 Longitude : 39° 24' 00" E  
 Duration : Jan. 14 - Jan. 31 , 2014  
 Unit : Centimeter

Time is LMT (UT +3hours)  
 The zero of the tide gauge: 476.4 cm below the HBM  
 HBM : Hydrographic and Oceanographic Department  
 Bench mark

| Year | Month | Date | Time |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |                            |     |         | Sum | Mean |     |
|------|-------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------------------------|-----|---------|-----|------|-----|
|      |       |      | 0    | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20                         | 21  | 22      |     |      | 23  |
| 2014 | 1     | 14   |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 254 | 265 | 268 | 261                        | 249 | 240     | 233 | 1770 | 253 |
| 2014 | 1     | 15   | 231  | 237 | 248 | 259 | 267 | 270 | 261 | 244 | 219 | 190 | 167 | 147 | 141 | 152 | 171 | 197 | 223 | 245 | 258 | 262 | 258                        | 246 | 232     | 223 | 5348 | 223 |
| 2014 | 1     | 16   | 219  | 221 | 233 | 248 | 260 | 266 | 262 | 247 | 225 | 196 | 168 | 147 | 136 | 139 | 157 | 182 | 208 | 233 | 249 | 255 | 253                        | 242 | 228     | 215 | 5189 | 216 |
| 2014 | 1     | 17   | 208  | 209 | 219 | 234 | 250 | 261 | 263 | 256 | 238 | 209 | 181 | 156 | 140 | 139 | 151 | 173 | 201 | 225 | 245 | 257 | 256                        | 246 | 234     | 220 | 5171 | 215 |
| 2014 | 1     | 18   | 210  | 207 | 213 | 229 | 248 | 263 | 270 | 267 | 257 | 233 | 202 | 178 | 160 | 152 | 158 | 176 | 201 | 226 | 246 | 259 | 262                        | 253 | 238     | 225 | 5333 | 222 |
| 2014 | 1     | 19   | 213  | 205 | 207 | 218 | 236 | 253 | 262 | 264 | 256 | 238 | 213 | 186 | 166 | 154 | 154 | 166 | 188 | 211 | 230 | 244 | 250                        | 245 | 230     | 217 | 5206 | 217 |
| 2014 | 1     | 20   | 206  | 195 | 192 | 201 | 217 | 234 | 248 | 254 | 253 | 241 | 221 | 198 | 177 | 164 | 162 | 169 | 186 | 207 | 227 | 242 | 249                        | 247 | 236     | 223 | 5149 | 215 |
| 2014 | 1     | 21   | 211  | 200 | 193 | 195 | 206 | 223 | 237 | 245 | 249 | 244 | 232 | 214 | 196 | 182 | 177 | 181 | 192 | 208 | 227 | 240 | 247                        | 250 | 243     | 229 | 5221 | 218 |
| 2014 | 1     | 22   | 216  | 203 | 192 | 188 | 194 | 206 | 218 | 229 | 237 | 238 | 231 | 219 | 206 | 196 | 189 | 191 | 197 | 206 | 223 | 236 | 241                        | 245 | 242     | 231 | 5174 | 216 |
| 2014 | 1     | 23   | 218  | 206 | 196 | 188 | 190 | 197 | 204 | 215 | 224 | 228 | 229 | 225 | 217 | 211 | 208 | 210 | 212 | 217 | 229 | 238 | 243                        | 246 | 244     | 238 | 5233 | 218 |
| 2014 | 1     | 24   | 227  | 215 | 205 | 194 | 188 | 189 | 191 | 194 | 202 | 208 | 212 | 215 | 217 | 218 | 220 | 223 | 225 | 229 | 235 | 241 | 245                        | 246 | 246     | 245 | 5230 | 218 |
| 2014 | 1     | 25   | 238  | 228 | 222 | 211 | 200 | 194 | 190 | 186 | 187 | 192 | 196 | 204 | 212 | 220 | 228 | 236 | 241 | 242 | 242 | 244 | 245                        | 244 | 242     | 241 | 5285 | 220 |
| 2014 | 1     | 26   | 239  | 235 | 229 | 219 | 208 | 199 | 184 | 173 | 169 | 167 | 169 | 178 | 192 | 208 | 223 | 239 | 249 | 252 | 254 | 251 | 246                        | 243 | 241     | 238 | 5205 | 217 |
| 2014 | 1     | 27   | 239  | 241 | 239 | 234 | 227 | 216 | 198 | 182 | 169 | 158 | 155 | 162 | 175 | 196 | 220 | 242 | 259 | 269 | 270 | 265 | 257                        | 249 | 243     | 242 | 5307 | 221 |
| 2014 | 1     | 28   | 245  | 250 | 254 | 254 | 251 | 242 | 222 | 197 | 175 | 155 | 143 | 141 | 150 | 170 | 197 | 226 | 249 | 265 | 272 | 267 | 256                        | 246 | 235     | 230 | 5292 | 221 |
| 2014 | 1     | 29   | 233  | 239 | 248 | 257 | 260 | 254 | 238 | 213 | 183 | 155 | 133 | 120 | 121 | 140 | 166 | 197 | 229 | 253 | 265 | 265 | 255                        | 242 | 227     | 217 | 5110 | 213 |
| 2014 | 1     | 30   | 219  | 228 | 241 | 256 | 267 | 272 | 263 | 240 | 210 | 178 | 147 | 124 | 117 | 126 | 149 | 180 | 214 | 240 | 259 | 265 | 257                        | 240 | 224     | 210 | 5126 | 214 |
| 2014 | 1     | 31   | 203  | 209 | 225 | 243 | 262 | 274 | 273 | 260 | 235 | 201 | 166 | 137 | 121 | 121 | 137 | 165 | 196 | 224 | 245 | 257 |                            |     |         |     | 4154 | 208 |
|      |       |      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Mean 2014.1.15 ~ 2014.1.30 |     | 2.177cm |     |      |     |

$$\begin{aligned}
 A0' &= A1' + (A0 - A1) \\
 &= 217.7 + (255.0 - 244.5) \\
 &= 228.2 \text{ cm}
 \end{aligned}$$

A0' : Mean Sea Level of Skallen  
 A1' : Mean of Skallen ( 2014.1.15 ~ 2014.1.30 )  
 A0 : Mean of Syowa Station ( 2009.1.1 ~ 2013.12.31 )  
 A1 : Mean of Syowa Station ( 2014.1.15 ~ 2014.1.30 )

Table 4. Harmonic constants at Skallen for 15 days

Station: Skallen

Position: Lat. 69-40-27S, Lon. 39-24-00E

Epoch: 2014/01/15

Harmonic Constants:

|                 | H (cm) | K (deg.) |
|-----------------|--------|----------|
| M <sub>2</sub>  | 25.3   | 157.4    |
| S <sub>2</sub>  | 22.0   | 176.6    |
| K <sub>2</sub>  | 6.0    | 176.6    |
| N <sub>2</sub>  | 3.9    | 147.8    |
| K <sub>1</sub>  | 22.4   | 359.6    |
| O <sub>1</sub>  | 27.0   | 349.1    |
| P <sub>1</sub>  | 7.5    | 359.6    |
| Q <sub>1</sub>  | 7.5    | 318.0    |
| M <sub>4</sub>  | 0.3    | 108.3    |
| MS <sub>4</sub> | 0.1    | 210.9    |