Abstract The effects of different storage techniques (regular atmosphere (RA), controlled atmosphere (CA) and dynamic controlled atmosphere (DCA)) and 1-methylcyclopropene (1-MCP) treatment on the storage quality and superficial scald of Granny Smith were evaluated. Fruits treated with 1-MCP at a concentration of 1 µL L-1 for 24 h at 20°C were stored in CA (1% CO2 - 1.5% O2) for 10 months and RA (21% O2) 8 months. In addition, non-treated fruits were stored in DCA (0.7-0.8% O2 - 1% CO2) for 10 months. Fruits of all treatments were stored at 0°C and 90±5% relative humidity. During the storage period fruit firmness, fruit colour, ethylene production, respiration rate, titratable acidity (TA), total soluble solid (TSS), weight loss and superficial scald severity were examined. CA+1-MCP and DCA were the most effective treatments for maintaining the fruit firmness. CA, CA+1-MCP and DCA treatments preserved the green ground colour of fruits. The respiration rate and ethylene production of fruits were suppressed by the all treatments except for RA during 8 months. However, the role of 1-MCP in the suppression of ethylene production was higher than other treatments.