A new method is proposed to determine the timing of the polar-vortex breakup in the spring-time stratosphere. While all the previous definitions of the vortex breakup are to be applied to the lower stratosphere, this new method can be used for all the levels of the stratosphere. The edge of the polar vortex near the time of breakup is defined by the value of potential vorticity (PV) averaged for 15 days at the largest latitudinal gradient of PV when the vortex significantly weakens. Then the timing of vortex breakup is defined as when the vortex area decreases most rapidly. To test the validity of this new definition of the vortex breakup, distributions of various trace species are analyzed including methane, nitrous oxide, water vapor, and ozone observed by Improved Limb Atmospheric Spectrometer (ILAS) and ILAS-II, and ozone observed by Polar Ozone and Aerosol Measurement (POAM) 2 and POAM 3. Distributions of trace species observed around the breakup time show that the new method is better than previous methods particularly in the upper stratosphere.