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Mark

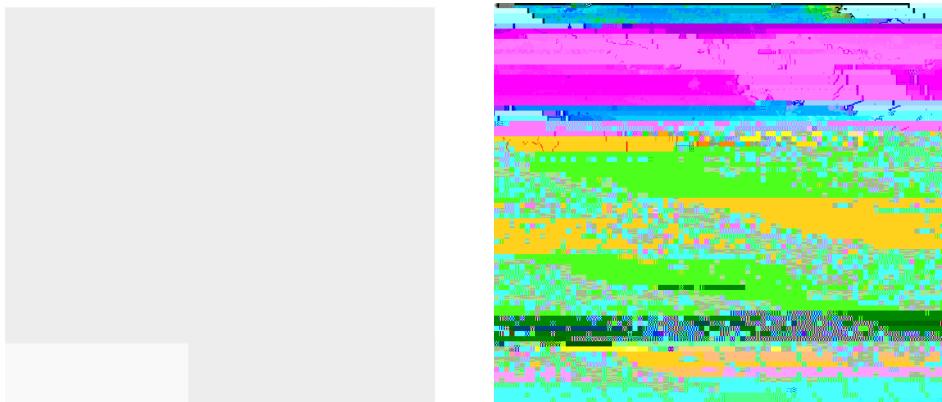
1.  $\frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{8}$ ,  $\frac{1}{2} \cdot \frac{1}{2} = \frac{1}{4}$ ,  $\frac{1}{2} \cdot \frac{1}{2} = \frac{1}{4}$

$\delta^{30}\text{C}$  ( )<sub>4</sub> (+2.2‰) +4.4‰)  
 (0.2, 14°, 108115( 08111( 11( 314.7079 453.6453.696 (+) / 10205 7410 )8, 5.4508 0 0 5.4508 3  
 ( ).)

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## 1. Introduction

\* . . . . . : +49 (0) 431 600 2259; ] : +49 (0) 431 600 2925.



**Table 1**

$$\frac{1}{(2\sigma_{\epsilon_1, \epsilon_2})} \left[ \frac{1}{1 - \epsilon_1 \epsilon_2} \right] \left[ \frac{1}{1 - \epsilon_1} \right] \left[ \frac{1}{1 - \epsilon_2} \right] (2\sigma_{\epsilon_1, \epsilon_2}).$$

30% (2006).  
30% (2004).  
14–21%.

1980/81, 1981/82, 1982/83, 1983/84, 1984/85, 1985/86, 1986/87







], 2012). 170 93 100 (-6") 100  
 170 93 150 170 (-7") 5 100  
 -2.3 +6" fl 3  
 (~8) 16:1 (fl, 1958), 100  
 $\sqrt{2}$  fl 100



fluctuation ( $\delta^{30}\epsilon_{(4)}$ ) from 1982 to 1996; the  $\delta^{30}\epsilon_{(4)}$  value in 2000 was  $-0.3\%$ ; the  $\delta^{30}\epsilon_{(4)}$  value in 2012 was  $+1.3\%$ ; the  $\delta^{30}\epsilon_{(4)}$  value in 2014 was  $+0.6\%$ ; the  $\delta^{30}\epsilon_{(4)}$  value in 2016 was  $+1.6\%$ .

## 5. Conclusions

The  $\delta^{30}\epsilon_{(4)}$  values in 1982, 1996, 2000, 2012, and 2014 were  $-0.2\%$ ,  $-0.4\%$ ,  $-0.3\%$ ,  $+1.3\%$ , and  $+0.6\%$ , respectively. The  $\delta^{30}\epsilon_{(4)}$  value in 2016 was  $+1.6\%$ . The  $\delta^{30}\epsilon_{(4)}$  value in 2014 was  $+4.4\%$ . The  $\delta^{30}\epsilon_{(4)}$  value in 2016 was  $+2\%$ .

0(01)0.1

1. 1. 2012 1. 1. 2012 1. 1. 2012 1. 1. 2012 1. 1. 2012