

|        | year |    |    |    |    |    |
|--------|------|----|----|----|----|----|
|        | 1    | 2  | 3  | 4  | 5  | 6  |
|        | N    | N  | N  | N  | N  | N  |
| period | .    | .  | .  |    |    |    |
| After  | .    | .  | .  | 16 | 16 | 16 |
| Before | 16   | 16 | 16 | .  | .  | .  |

|                  | site |    |    |    |
|------------------|------|----|----|----|
|                  | 1    | 2  | 3  | 4  |
|                  | N    | N  | N  | N  |
| <b>siteclass</b> |      |    |    |    |
| <b>Control</b>   | .    | .  | 24 | 24 |
| <b>Impact</b>    | 24   | 24 | .  | .  |

|             | site |   |   |   |
|-------------|------|---|---|---|
|             | 1    | 2 | 3 | 4 |
|             | N    | N | N | N |
| <b>year</b> |      |   |   |   |
| <b>1</b>    | 4    | 4 | 4 | 4 |
| <b>2</b>    | 4    | 4 | 4 | 4 |
| <b>3</b>    | 4    | 4 | 4 | 4 |
| <b>4</b>    | 4    | 4 | 4 | 4 |
| <b>5</b>    | 4    | 4 | 4 | 4 |
| <b>6</b>    | 4    | 4 | 4 | 4 |

*The GLM Procedure*

| Class Level Information |        |                |
|-------------------------|--------|----------------|
| Class                   | Levels | Values         |
| period                  | 2      | After Before   |
| siteclass               | 2      | Control Impact |
| year                    | 6      | 1 2 3 4 5 6    |
| site                    | 4      | 1 2 3 4        |
| sample                  | 4      | 1 2 3 4        |

|                             |    |
|-----------------------------|----|
| Number of Observations Read | 96 |
| Number of Observations Used | 96 |

**The GLM Procedure**

**Dependent Variable: y**

| Source                 | DF | Sum of Squares | Mean Square | F Value | Pr > F |
|------------------------|----|----------------|-------------|---------|--------|
| <b>Model</b>           | 23 | 25.5392710     | 1.1104031   | 1.04    | 0.4344 |
| <b>Error</b>           | 72 | 77.1016319     | 1.0708560   |         |        |
| <b>Corrected Total</b> | 95 | 102.6409029    |             |         |        |

| R-Square | Coeff Var | Root MSE | y Mean    |
|----------|-----------|----------|-----------|
| 0.248822 | -2586.855 | 1.034822 | -0.040003 |

| Source                      | DF | Type I SS   | Mean Square | F Value | Pr > F |
|-----------------------------|----|-------------|-------------|---------|--------|
| <b>period</b>               | 1  | 0.17784644  | 0.17784644  | 0.17    | 0.6848 |
| <b>siteclass</b>            | 1  | 1.85247965  | 1.85247965  | 1.73    | 0.1926 |
| <b>period*siteclass</b>     | 1  | 0.10138800  | 0.10138800  | 0.09    | 0.7592 |
| <b>year(period)</b>         | 4  | 6.05619398  | 1.51404850  | 1.41    | 0.2381 |
| <b>site(siteclass)</b>      | 2  | 1.13177105  | 0.56588553  | 0.53    | 0.5918 |
| <b>year*site(peri*site)</b> | 14 | 16.21959193 | 1.15854228  | 1.08    | 0.3882 |
| <b>sitecla*year(period)</b> | 0  | 0.00000000  | .           | .       | .      |
| <b>period*site(sitecla)</b> | 0  | 0.00000000  | .           | .       | .      |

| Source                      | DF | Type III SS | Mean Square | F Value | Pr > F |
|-----------------------------|----|-------------|-------------|---------|--------|
| <b>period</b>               | 1  | 0.17784644  | 0.17784644  | 0.17    | 0.6848 |
| <b>siteclass</b>            | 1  | 1.85247965  | 1.85247965  | 1.73    | 0.1926 |
| <b>period*siteclass</b>     | 1  | 0.10138800  | 0.10138800  | 0.09    | 0.7592 |
| <b>year(period)</b>         | 4  | 6.05619398  | 1.51404850  | 1.41    | 0.2381 |
| <b>site(siteclass)</b>      | 2  | 1.13177105  | 0.56588553  | 0.53    | 0.5918 |
| <b>year*site(peri*site)</b> | 8  | 10.24417505 | 1.28052188  | 1.20    | 0.3138 |
| <b>sitecla*year(period)</b> | 4  | 4.31499179  | 1.07874795  | 1.01    | 0.4095 |
| <b>period*site(sitecla)</b> | 2  | 1.66042509  | 0.83021255  | 0.78    | 0.4644 |

**The GLM Procedure**

| Source                      | Type III Expected Mean Square   |
|-----------------------------|---|
| <b>period</b>               | $\text{Var}(\text{Error}) + 12 \text{Var}(\text{period} * \text{site}(\text{sitecla})) + 8 \text{Var}(\text{sitecla} * \text{year}(\text{period})) + 4 \text{Var}(\text{year} * \text{site}(\text{peri} * \text{site})) + 16 \text{Var}(\text{year}(\text{period})) + Q(\text{period}, \text{period} * \text{siteclass})$       |
| <b>siteclass</b>            | $\text{Var}(\text{Error}) + 12 \text{Var}(\text{period} * \text{site}(\text{sitecla})) + 8 \text{Var}(\text{sitecla} * \text{year}(\text{period})) + 4 \text{Var}(\text{year} * \text{site}(\text{peri} * \text{site})) + 24 \text{Var}(\text{site}(\text{siteclass})) + Q(\text{siteclass}, \text{period} * \text{siteclass})$ |
| <b>period*siteclass</b>     | $\text{Var}(\text{Error}) + 12 \text{Var}(\text{period} * \text{site}(\text{sitecla})) + 8 \text{Var}(\text{sitecla} * \text{year}(\text{period})) + 4 \text{Var}(\text{year} * \text{site}(\text{peri} * \text{site})) + Q(\text{period} * \text{siteclass})$  |
| <b>year(period)</b>         | $\text{Var}(\text{Error}) + 8 \text{Var}(\text{sitecla} * \text{year}(\text{period})) + 4 \text{Var}(\text{year} * \text{site}(\text{peri} * \text{site})) + 16 \text{Var}(\text{year}(\text{period}))$   |
| <b>site(siteclass)</b>      | $\text{Var}(\text{Error}) + 12 \text{Var}(\text{period} * \text{site}(\text{sitecla})) + 4 \text{Var}(\text{year} * \text{site}(\text{peri} * \text{site})) + 24 \text{Var}(\text{site}(\text{siteclass}))$   |
| <b>year*site(peri*site)</b> | $\text{Var}(\text{Error}) + 4 \text{Var}(\text{year} * \text{site}(\text{peri} * \text{site}))$   |
| <b>sitecla*year(period)</b> | $\text{Var}(\text{Error}) + 8 \text{Var}(\text{sitecla} * \text{year}(\text{period})) + 4 \text{Var}(\text{year} * \text{site}(\text{peri} * \text{site}))$   |
| <b>period*site(sitecla)</b> | $\text{Var}(\text{Error}) + 12 \text{Var}(\text{period} * \text{site}(\text{sitecla})) + 4 \text{Var}(\text{year} * \text{site}(\text{peri} * \text{site}))$  |

**The GLM Procedure**

| Class Level Information |        |                |
|-------------------------|--------|----------------|
| Class                   | Levels | Values         |
| period                  | 2      | After Before   |
| siteclass               | 2      | Control Impact |
| year                    | 6      | 1 2 3 4 5 6    |
| site                    | 4      | 1 2 3 4        |
| sample                  | 4      | 1 2 3 4        |

|                             |    |
|-----------------------------|----|
| Number of Observations Read | 96 |
| Number of Observations Used | 96 |

**The GLM Procedure**

**Dependent Variable: y**

| Source                 | DF | Sum of Squares | Mean Square | F Value | Pr > F |
|------------------------|----|----------------|-------------|---------|--------|
| <b>Model</b>           | 23 | 25.5392710     | 1.1104031   | 1.04    | 0.4344 |
| <b>Error</b>           | 72 | 77.1016319     | 1.0708560   |         |        |
| <b>Corrected Total</b> | 95 | 102.6409029    |             |         |        |

| R-Square | Coeff Var | Root MSE | y Mean    |
|----------|-----------|----------|-----------|
| 0.248822 | -2586.855 | 1.034822 | -0.040003 |

| Source                        | DF | Type I SS   | Mean Square | F Value | Pr > F |
|-------------------------------|----|-------------|-------------|---------|--------|
| <b>period</b>                 | 1  | 0.17784644  | 0.17784644  | 0.17    | 0.6848 |
| <b>siteclass</b>              | 1  | 1.85247965  | 1.85247965  | 1.73    | 0.1926 |
| <b>period*siteclass</b>       | 1  | 0.10138800  | 0.10138800  | 0.09    | 0.7592 |
| <b>year(period)</b>           | 4  | 6.05619398  | 1.51404850  | 1.41    | 0.2381 |
| <b>site(siteclass)</b>        | 2  | 1.13177105  | 0.56588553  | 0.53    | 0.5918 |
| <b>year*site(period*site)</b> | 14 | 16.21959193 | 1.15854228  | 1.08    | 0.3882 |
| <b>period*site(sitecla)</b>   | 0  | 0.00000000  | .           | .       | .      |

| Source                        | DF | Type III SS | Mean Square | F Value | Pr > F |
|-------------------------------|----|-------------|-------------|---------|--------|
| <b>period</b>                 | 1  | 0.17784644  | 0.17784644  | 0.17    | 0.6848 |
| <b>siteclass</b>              | 1  | 1.85247965  | 1.85247965  | 1.73    | 0.1926 |
| <b>period*siteclass</b>       | 1  | 0.10138800  | 0.10138800  | 0.09    | 0.7592 |
| <b>year(period)</b>           | 4  | 6.05619398  | 1.51404850  | 1.41    | 0.2381 |
| <b>site(siteclass)</b>        | 2  | 1.13177105  | 0.56588553  | 0.53    | 0.5918 |
| <b>year*site(period*site)</b> | 12 | 14.55916684 | 1.21326390  | 1.13    | 0.3481 |
| <b>period*site(sitecla)</b>   | 2  | 1.66042509  | 0.83021255  | 0.78    | 0.4644 |

**The GLM Procedure**

| Source                      | Type III Expected Mean Square   |
|-----------------------------|---|
| <b>period</b>               | Var(Error) + 12 Var(period*site(sitecla)) + 4 Var(year*site(peri*site)) + 16 Var(year(period)) + Q(period,period*siteclass)       |
| <b>siteclass</b>            | Var(Error) + 12 Var(period*site(sitecla)) + 4 Var(year*site(peri*site)) + 24 Var(site(siteclass)) + Q(siteclass,period*siteclass) |
| <b>period*siteclass</b>     | Var(Error) + 12 Var(period*site(sitecla)) + 4 Var(year*site(peri*site)) + Q(period*siteclass)                                     |
| <b>year(period)</b>         | Var(Error) + 4 Var(year*site(peri*site)) + 16 Var(year(period))   |
| <b>site(siteclass)</b>      | Var(Error) + 12 Var(period*site(sitecla)) + 4 Var(year*site(peri*site)) + 24 Var(site(siteclass))                                 |
| <b>year*site(peri*site)</b> | Var(Error) + 4 Var(year*site(peri*site))  |
| <b>period*site(sitecla)</b> | Var(Error) + 12 Var(period*site(sitecla)) + 4 Var(year*site(peri*site))   |

**The GLM Procedure**  
**Tests of Hypotheses for Mixed Model Analysis of Variance**

**Dependent Variable:** y

|   | Source        | DF     | Type III SS | Mean Square | F Value | Pr > F |
|---|---------------|--------|-------------|-------------|---------|--------|
| *   | <b>period</b> | 1      | 0.177846    | 0.177846    | 0.16    | 0.7495 |
|   | <b>Error</b>  | 1.2295 | 1.390569    | 1.130997    |         |        |
| <b>Error: MS(year(period)) - MS(year*site(peri*site)) + MS(period*site(sitecla)) - 13E-16*MS(Error)</b> |               |        |             |             |         |        |
| * This test assumes one or more other fixed effects are zero.   |               |        |             |             |         |        |

|   | Source           | DF | Type III SS | Mean Square | F Value | Pr > F |
|---|------------------|----|-------------|-------------|---------|--------|
| *   | <b>siteclass</b> | 1  | 1.852480    | 1.852480    | 3.27    | 0.2121 |
|   | <b>Error</b>     | 2  | 1.131771    | 0.565886    |         |        |
| <b>Error: MS(site(siteclass))</b>                             |                  |    |             |             |         |        |
| * This test assumes one or more other fixed effects are zero. |                  |    |             |             |         |        |

| Source                                 | DF | Type III SS | Mean Square | F Value | Pr > F |
|--|----|-------------|-------------|---------|--------|
| <b>period*siteclass</b>                | 1  | 0.101388    | 0.101388    | 0.12    | 0.7601 |
| <b>site(siteclass)</b>                 | 2  | 1.131771    | 0.565886    | 0.68    | 0.5947 |
| <b>Error</b>                           | 2  | 1.660425    | 0.830213    |         |        |
| <b>Error: MS(period*site(sitecla))</b> |    |             |             |         |        |

| Source                                 | DF | Type III SS | Mean Square | F Value | Pr > F |
|--|----|-------------|-------------|---------|--------|
| <b>year(period)</b>                    | 4  | 6.056194    | 1.514048    | 1.25    | 0.3428 |
| <b>period*site(sitecla)</b>            | 2  | 1.660425    | 0.830213    | 0.68    | 0.5231 |
| <b>Error</b>                           | 12 | 14.559167   | 1.213264    |         |        |
| <b>Error: MS(year*site(peri*site))</b> |    |             |             |         |        |

| Source                      | DF | Type III SS | Mean Square | F Value | Pr > F |
|-----------------------------|----|-------------|-------------|---------|--------|
| <b>year*site(peri*site)</b> | 12 | 14.559167   | 1.213264    | 1.13    | 0.3481 |
| <b>Error: MS(Error)</b>     | 72 | 77.101632   | 1.070856    |         |        |

**The GLM Procedure**

| Class Level Information |        |                |
|-------------------------|--------|----------------|
| Class                   | Levels | Values         |
| period                  | 2      | After Before   |
| siteclass               | 2      | Control Impact |
| year                    | 6      | 1 2 3 4 5 6    |
| site                    | 4      | 1 2 3 4        |
| sample                  | 4      | 1 2 3 4        |

|                             |    |
|-----------------------------|----|
| Number of Observations Read | 96 |
| Number of Observations Used | 96 |

**The GLM Procedure**

**Dependent Variable: y**

| Source                 | DF | Sum of Squares | Mean Square | F Value | Pr > F |
|------------------------|----|----------------|-------------|---------|--------|
| <b>Model</b>           | 23 | 25.5392710     | 1.1104031   | 1.04    | 0.4344 |
| <b>Error</b>           | 72 | 77.1016319     | 1.0708560   |         |        |
| <b>Corrected Total</b> | 95 | 102.6409029    |             |         |        |

| R-Square | Coeff Var | Root MSE | y Mean    |
|----------|-----------|----------|-----------|
| 0.248822 | -2586.855 | 1.034822 | -0.040003 |

| Source                        | DF | Type I SS   | Mean Square | F Value | Pr > F |
|-------------------------------|----|-------------|-------------|---------|--------|
| <b>period</b>                 | 1  | 0.17784644  | 0.17784644  | 0.17    | 0.6848 |
| <b>siteclass</b>              | 1  | 1.85247965  | 1.85247965  | 1.73    | 0.1926 |
| <b>period*siteclass</b>       | 1  | 0.10138800  | 0.10138800  | 0.09    | 0.7592 |
| <b>year(period)</b>           | 4  | 6.05619398  | 1.51404850  | 1.41    | 0.2381 |
| <b>site(siteclass)</b>        | 2  | 1.13177105  | 0.56588553  | 0.53    | 0.5918 |
| <b>year*site(period*site)</b> | 14 | 16.21959193 | 1.15854228  | 1.08    | 0.3882 |

| Source                        | DF | Type III SS | Mean Square | F Value | Pr > F |
|-------------------------------|----|-------------|-------------|---------|--------|
| <b>period</b>                 | 1  | 0.17784644  | 0.17784644  | 0.17    | 0.6848 |
| <b>siteclass</b>              | 1  | 1.85247965  | 1.85247965  | 1.73    | 0.1926 |
| <b>period*siteclass</b>       | 1  | 0.10138800  | 0.10138800  | 0.09    | 0.7592 |
| <b>year(period)</b>           | 4  | 6.05619398  | 1.51404850  | 1.41    | 0.2381 |
| <b>site(siteclass)</b>        | 2  | 1.13177105  | 0.56588553  | 0.53    | 0.5918 |
| <b>year*site(period*site)</b> | 14 | 16.21959193 | 1.15854228  | 1.08    | 0.3882 |

**The GLM Procedure**

| Source                        | Type III Expected Mean Square   |
|-------------------------------|---|
| <b>period</b>                 | Var(Error) + 4 Var(year*site(period*site)) + 16 Var(year(period)) + Q(period, period*siteclass)       |
| <b>siteclass</b>              | Var(Error) + 4 Var(year*site(period*site)) + 24 Var(site(siteclass)) + Q(siteclass, period*siteclass) |
| <b>period*siteclass</b>       | Var(Error) + 4 Var(year*site(period*site)) + Q(period*siteclass)                                      |
| <b>year(period)</b>           | Var(Error) + 4 Var(year*site(period*site)) + 16 Var(year(period))                                     |
| <b>site(siteclass)</b>        | Var(Error) + 4 Var(year*site(period*site)) + 24 Var(site(siteclass))                                  |
| <b>year*site(period*site)</b> | Var(Error) + 4 Var(year*site(period*site))  |

**The GLM Procedure**  
**Tests of Hypotheses for Mixed Model Analysis of Variance**

**Dependent Variable:** y

|   | Source | DF | Type III SS | Mean Square | F Value | Pr > F |
|---|--------|----|-------------|-------------|---------|--------|
| *   | period | 1  | 0.177846    | 0.177846    | 0.12    | 0.7491 |
|   | Error  | 4  | 6.056194    | 1.514048    |         |        |
| <b>Error: MS(year(period))</b>                                |        |    |             |             |         |        |
| * This test assumes one or more other fixed effects are zero. |        |    |             |             |         |        |

|   | Source    | DF | Type III SS | Mean Square | F Value | Pr > F |
|---|-----------|----|-------------|-------------|---------|--------|
| *   | siteclass | 1  | 1.852480    | 1.852480    | 3.27    | 0.2121 |
|   | Error     | 2  | 1.131771    | 0.565886    |         |        |
| <b>Error: MS(site(siteclass))</b>                             |           |    |             |             |         |        |
| * This test assumes one or more other fixed effects are zero. |           |    |             |             |         |        |

| Source                                 | DF | Type III SS | Mean Square | F Value | Pr > F |
|--|----|-------------|-------------|---------|--------|
| period*siteclass                       | 1  | 0.101388    | 0.101388    | 0.09    | 0.7717 |
| year(period)                           | 4  | 6.056194    | 1.514048    | 1.31    | 0.3150 |
| site(siteclass)                        | 2  | 1.131771    | 0.565886    | 0.49    | 0.6237 |
| Error                                  | 14 | 16.219592   | 1.158542    |         |        |
| <b>Error: MS(year*site(peri*site))</b> |    |             |             |         |        |

| Source               | DF | Type III SS | Mean Square | F Value | Pr > F |
|----------------------|----|-------------|-------------|---------|--------|
| year*site(peri*site) | 14 | 16.219592   | 1.158542    | 1.08    | 0.3882 |
| Error: MS(Error)     | 72 | 77.101632   | 1.070856    |         |        |