

# NDK\_AIRLINE\_SIM

Last Modified on 07/11/2016 11:28 am CDT

- [C/C++](#)
- [.Net](#)

```
int __stdcall NDK_AIRLINE_SIM(double * pData,  
                             size_t  nSize,  
                             double  mean,  
                             double  sigma,  
                             WORD     S,  
                             double  theta,  
                             double  theta2,  
                             UINT     nSeed,  
                             double * retArray,  
                             size_t  nSteps  
                             )
```

Returns an array of cells for the simulated values.

## Returns

status code of the operation

## Return values

**NDK\_SUCCESS** Operation successful

**NDK\_FAILED** Operation unsuccessful. See [Macros](#) for full list.

## Parameters

- [in] **pData** is a univariate time series of the initial values (a one dimensional array).
- [in] **nSize** is the number of observations in pData.
- [in] **mean** is the model mean (i.e.  $\mu$ ).
- [in] **sigma** is the standard deviation of the model's residuals/innovations.
- [in] **S** is the length of seasonality (expressed in terms of lags, where  $s > 1$ ).
- [in] **theta** is the coefficient of first-lagged innovation (see model description).
- [in] **theta2** is the coefficient of s-lagged innovation (see model description).
- [in] **nSeed** is an unsigned integer for setting up the random number generators
- [out] **retArray** is the calculated simulation value
- [in] **nSteps** is the number of future steps to simulate for.

## Remarks

1. The underlying model is described [here](#).
2. The time series is homogeneous or equally spaced
3. The time series may include missing values (e.g. NaN) at either end.
4. NDK\_ARMA\_SIM returns an array of one simulation path starting from the end of the input data.

5. The input data argument (i.e. latest observations) is optional. If omitted, an array of zeroes is assumed.
6. The time series is homogeneous or equally spaced.
7. The time series may include missing values (e.g. NaN) at either end.
8. The long-run mean argument (mean) can take any value or be omitted, in which case a zero value is assumed.
9. The value of the residuals/innovations standard deviation (sigma) must be positive.
10. The season length must be greater than one.
11. The input argument for the non-seasonal MA parameter - theta - is optional and can be omitted, in which case no non-seasonal MA component is included.
12. The input argument for the seasonal MA parameter - theta2 - is optional and can be omitted, in which case no seasonal MA component is included.

### Requirements

<b>Header</b>	SFSDK.H
<b>Library</b>	SFSDK.LIB
<b>DLL</b>	SFSDK.DLL

### Examples

```
int NDK_AIRLINE_SIM(double[] pData,
                   UIntPtr nSize,
                   double mean,
                   double sigma,
                   short dSeason,
                   double theta,
                   double theta2,
                   int nSeed,
                   double[] retVal,
                   UIntPtr nSteps
                   )
```

<b>Namespace:</b> NumXLAPI
<b>Class:</b> SFSDK
<b>Scope:</b> Public
<b>Lifetime:</b> Static

Returns an array of cells for the simulated values.

## Return Value

a value from **NDK\_RETCODE** enumeration for the status of the call.

**NDK\_SUCCESS** operation successful  
Error                      Error Code

## Parameters

- [in] **pData** is a univariate time series of the initial values (a one dimensional array).
- [in] **nSize** is the number of observations in pData.
- [in] **mean** is the model mean (i.e. mu).
- [in] **sigma** is the standard deviation of the model's residuals/innovations.
- [in] **dSeason** is the length of seasonality (expressed in terms of lags, where  $s > 1$ ).
- [in] **theta** is the coefficient of first-lagged innovation (see model description).
- [in] **theta2** is the coefficient of s-lagged innovation (see model description).
- [in] **nSeed** is an unsigned integer for setting up the random number generators
- [out] **retVal** is the calculated simulation value
- [in] **nSteps** is the number of future steps to simulate for.

## Remarks

1. The underlying model is described [here](#).
2. The time series is homogeneous or equally spaced
3. The time series may include missing values (e.g. NaN) at either end.
4. NDK\_ARMA\_SIM returns an array of one simulation path starting from the end of the input data.
5. The input data argument (i.e. latest observations) is optional. If omitted, an array of zeroes is assumed.
6. The time series is homogeneous or equally spaced.
7. The time series may include missing values (e.g. NaN) at either end.
8. The long-run mean argument (mean) can take any value or be omitted, in which case a zero value is assumed.
9. The value of the residuals/innovations standard deviation (sigma) must be positive.
10. The season length must be greater than one.
11. The input argument for the non-seasonal MA parameter - theta - is optional and can be omitted, in which case no non-seasonal MA component is included.
12. The input argument for the seasonal MA parameter - theta2 - is optional and can be omitted, in which case no seasonal MA component is included.

## Exceptions

Exception Type	Condition
None	N/A

## Requirements

<b>Namespace</b>	NumXLAPI
<b>Class</b>	SFSDK
<b>Scope</b>	Public
<b>Lifetime</b>	Static
<b>Package</b>	NumXLAPI.DLL

## Examples

---

## References

- Hamilton, J .D.; [Time Series Analysis](#) , Princeton University Press (1994), ISBN 0-691-04289-6
- Tsay, Ruey S.; [Analysis of Financial Time Series](#) John Wiley & SONS. (2005), ISBN 0-471-690740

## See Also

[template("related")]

---