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GEOLOGICALLY ORIENTED SCHEME FOR SHARING INFORMATION ON PROGRAMMING  
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ANNOTATED LIST  
OF SOME GEOLOGISTS  
WHO USE A COMPUTER

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SEPTEMBER 1966  
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THANKS ARE OFFERED TO THOSE WHO KINDLY CONTRIBUTED INFORMATION IN RESPONSE TO THE G.O.S.S.I.P. QUESTIONNAIRE. THE QUESTIONNAIRE WAS NOT WIDELY CIRCULATED, AND YOU MAY HAVE BEEN MISSED. ADDITIONAL COPIES OF THE QUESTIONNAIRE ARE THEREFORE ATTACHED AT THE END OF THE LIST. IF YOU ARE INTERESTED IN THE USE OF THE COMPUTER IN GEOLOGY, BUT HAVE NOT SENT IN A COMPLETED QUESTIONNAIRE, YOU MAY WISH TO DO SO NOW. IF THE INFORMATION LISTED IS OUT-OF-DATE OR MISLEADING, YOU MIGHT LIKE TO LET US HAVE CORRECTED DETAILS. AMENDMENTS CAN THEN BE MADE TO COMPLETE THE LIST AND BRING IT UP TO DATE.

WHILE IT WAS ORIGINALLY INTENDED TO RESTRICT THE ENTRIES TO BRITISH GEOLOGISTS, IT SEEMS THAT THE LIST WILL BE MORE GENERALLY USEFUL IF GEOLOGISTS WORKING OUTSIDE BRITAIN ARE ALSO INCLUDED.

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SEDIMENTOLOGY RESEARCH LABORATORY, WHITEKNIGHTS PARK, READING, BERKSHIRE.  
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 DR D B WILLIAMS

## ANNOTATED LIST

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THE FOLLOWING REPLIES WERE MADE TO THE QUESTIONNAIRE WHICH IS ATTACHED AT THE END OF THE LIST IT SHOULD BE NOTED THAT MANY REPLIES REFER TO PURPOSES FOR WHICH IT IS INTENDED TO USE A COMPUTER, RATHER THAN TO PROCEDURES FOR WHICH OPERATIONAL PROGRAMS ARE AVAILABLE

### BELFAST QUEENS UNIVERSITY

DR W SCHWARZACHER                      FORTRAN  
    GIP

ICT 1900  
EELM DEUCE

PROGRAMS BY W SCHWARZACHER

MULTIPLE CORRELATION    AUTOCORRELATION    LAGGED CORRELATION    CURVE FITTING  
TREND SURFACES    FOURIER ANALYSIS    SIMULATION OF TIME TRENDS

ANALYSIS OF STRATIGRAPHIC RECORD. SIMULATION OF SEDIMENTATION.

### BIRMINGHAM UNIVERSITY

DR N HAMILTON                      ICT C CODE  
    ICT K CODE

KDF 9

PROGRAMS BY N HAMILTON AND R F KING

CALCULATION OF THE DIRECTIONS OF THE PRINCIPAL AXES OF SUSCEPTIBILITY FROM TORQUE CURVE MEASUREMENTS AND OTHER PARAMETERS RELEVANT TO SUSCEPTIBILITY ANISOTROPY MEASUREMENTS. (RFK)  
CALCULATION OF SEDIMENT SIZE DISTRIBUTIONS FROM ANALYSES USING THE GALLENKAMP SEDIMENTATION BALANCE (NH)  
PETROCHEMICAL CALCULATIONS (NH)

MAINLY GRAIN FABRIC STUDIES, BUT HOPE TO CONTINUE WITH PETROCHEMICAL CALCULATIONS.

A I REES

CDC 3600

PROGRAMS BY A I REES AND C G A HARRISON

ROUTINE COMPUTATION OF SECOND RANK SYMMETRIC TENSOR.  
STATISTICAL TREATMENT OF MAGNETIC PROPERTIES INCLUDING FISHER AND CIRCULAR NORMAL STATISTICS

ROCK MAGNETISM AND PLAEOCURRENT INVESTIGATIONS.

BRISTOL UNIVERSITY

B GREENWOOD

ALGOL

ELLIOTT 503

PROGRAMS BY B GREENWOOD AND MISS C FAITHFULL

TEXTURAL ANALYSIS - SIZE FREQUENCY ANALYSIS - ESTABLISHES DATA FOR CUMALATIVE FREQUENCY CURVES AND GIVES STATISTICAL PARAMETERS.  
UNIQUE FREQUENCY CURVE DATA - USES METHOD OF CENTRAL DIFFERENCES TO PRODUCE DATA FOR UNIQUE SIZE-FREQUENCY DISTRIBUTION.  
CERTAIN STATISTICAL PROCEDURES - FOR EXAMPLE, LINEAR DISCRIMINATORY ANALYSIS.

ESTABLISHMENT OF MEASURES FOR DISCRIMINATING BETWEEN DIFFERENT ENVIRONMENTS ON THE BASIS OF SIZE FREQUENCY DISTRIBUTIONS. CALCULATION OF STATISTICAL PARAMETERS.

MR B HOCKEY

ALGOL

ELLIOTT 503

PROGRAMS BY KANE AND HUBERT (1962) TRANSLATED FROM FORTRAN BY COMPUTER UNIT STAFF, BY B HOCKEY, AND FROM COMPUTER UNIT LIBRARY.

PARTICLE SIZE FREQUENCY ANALYSIS STATISTICAL PROCEDURES SNEED AND FOLK SPHERICITY INDEX.

PARTICLE SIZES AND SHAPES.

MR P K HARVEY

ALGOL 60

ELLIOTT 503  
IBM 1620

PROGRAMS BY P K HARVEY

PROCESSING PROGRAMS FOR A PHILLIPS 1212 X-RAY FLUORESCENCE SPECTROMETER. ROUTINE PETROGRAPHIC PROGRAMS.

MAINLY GEOCHEMICAL AT PRESENT WE ENVISAGE A SYSTEM BY WHICH THE OUTPUT FROM OUR XRF SPECTROMETER MAY BE USED AS INPUT FOR STATISTICAL AND ROUTINE PETROGRAPHIC PROGRAMS I HOPE TO WORK IN THE NEAR FUTURE ON RATIO CORRELATION PROBLEMS, AND AM CONCERNED AT PRESENT WITH METASOMATIC PROBLEMS AND THE EVALUATION AND PREDICTIONS OF SUCH CHANGES.

MR R J HOWARTH

FORTRAN II  
ALGOL 60

IBM 1620  
ELLIOTT 503

PROGRAMS BY R J HOWARTH

FORTRAN

CALCULATION OF NIGGLI NUMBERS AND NORMATIVE FELDSPAR COMPOSITION.  
CALCULATION OF UNIT CELL CONTENTS (SEE MIN MAG, MARCH 1966).  
FIT OF BEST STRAIGHT LINE  $Y=AX+B$  AND RELIABLE LIMITS.



#### ALGOL

FIT OF TREND-SURFACES UP TO THIRD DEGREE WITH PRODUCTION OF TREND-SURFACE MAPS, DATA VALUES MAP, AND RESIDUAL MAPS  
FIT OF BEST STRAIGHT LINE  $Y=AX$  WITH CALCULATION OF CONFIDENCE BELTS  
PLOTS GRAPH OF DATA POINTS,  $Y=AX$ , CONFIDENCE BELTS AND LISTS ANY POINTS FALLING OUTSIDE THESE LIMITS. THEY ARE THEN DELETED AND A SECOND ITERATION IS PERFORMED CORRELATION COEFFICIENTS ETC ARE ALSO CALCULATED.  
PROCEDURE FOR PLOTTING TRIANGULAR DIAGRAMS (IN PREPARATION)  
PLOT OF FREQUENCY DISTRIBUTION OF DATA AND FITTED NORMAL CURVE  
(MODIFIED FROM PROGRAM BY C POLKEY)  
LISTING OF MODAL ANALYSIS WITH CALCULATION OF 95 PERCENT LIMITS FOR MINERAL PERCENTAGES, AND SAMPLE LOCALITIES  
OTHER PROGRAMS AVAILABLE  
R L KAESLER (1963) COEFFICIENT OF ASSOCIATION IBM 1620  
W T FOX (1964) TIME-TREND PROGRAM IBM 7090 (ALGOL VERSION IN PREPARATION)  
P K HARVEY AND R J HOWARTH VARIOUS PROGRAMS FOR CONVERSION OF RAW X.R.F. DATA TO PERCENTAGE OXIDE OR PPM, FOR THE PHILLIPS 1212 X.R.F. UNIT.

#### PETROCHEMICAL CALCULATIONS

ROUTINE DATA HANDLING OF OUTPUT FROM X-RAY FLUORESCENCE ANALYSIS  
APPLICATION OF FACTOR ANALYSIS TO GEOCHEMICAL AND PETROGRAPHIC DATA.  
INVESTIGATION OF FACTORS AFFECTING FORAM ECOLOGY SIMULATION OF FORAM POPULATION EVOLUTION

#### A G PLANT

ALGOL AND FORTRAN

ELLIOTT 503  
IBM 1620

PROGRAMS BY OTHER RESEARCH WORKERS IN GEOLOGY DEPARTMENT

SORTING AND CLASSIFICATION OF GEOCHEMICAL DATA  
PETROGRAPHIC CALCULATIONS

#### BRITISH MUSEUM (NATURAL HISTORY)

MR H BRUNTON NO COMPUTER USED AT PRESENT

A STORAGE, SORTING AND RETRIEVAL SYSTEM FOR MUSEUM DATA AND AS A TOOL IN TAXONOMIC DESCRIPTION AND COMMUNITY STUDIES

#### DR C T SCRUTTON

NO COMPUTER USED AT PRESENT

#### NUMERICAL TAXONOMY

INFORMATION STORAGE AND RETRIEVAL FOR MUSEUM PALAEONTOLOGICAL COLLECTION.

#### BRITISH PETROLEUM CO LTD

##### DR G V WOOD

ELLIOTT AUTOCODE AND ALGOL  
NEAT AND FORTRAN

ELLIOTT 803  
ELLIOTT 4120

PROGRAMS BY DR F M O, CARROLL

#### MOMENT CALCULATIONS

MULTIPLE REGRESSION AND DISCRIMINANT FUNCTION  
FACTOR ANALYSIS

MR T B H HALL

NO COMPUTER USED AT PRESENT

ENGAGED IN THE COLLECTION OF RAW DATA, ON PUNCHED CARDS AND PUNCHED PAPER TAPE, FROM BP'S FIELD OPERATIONS, FOR ELEMENTARY ACCOUNTING MACHINE PROCESSING AND INFORMATION RETRIEVAL, AND FOR POSSIBLE LATER COMPUTER WORK TO AID THE EXPLORATION FOR HYDROCARBONS

## CAMBRIDGE UNIVERSITY

DR J L CUTBILL

TITAN AUTOCODE

ICT TITAN ATLAS

PROGRAMS BY J L CUTBILL

CLASSIFICATION, CURVE FITTING, SIMPLE STATISTICS.

PALAEONTOLOGICAL CLASSIFICATION

STRATIGRAPHICAL CORRELATION

INFORMATION AND DATA RETRIEVAL FOR MUSEUMS AND LIBRARIES

MR T A DAVIES

TITAN AUTOCODE

ICT TITAN

PROGRAM BY T A DAVIES WITH J L CUTBILL

PROGRAM IS SPECIFICALLY DESIGNED FOR USE IN CONJUNCTION WITH THE EEL PHOTOELECTRIC SEDIMENTOMETER TO DETERMINE GRAIN SIZE FREQUENCY DISTRIBUTIONS IN THE SILT-CLAY RANGE.

DR D B WILLIAMS

TITAN AUTOCODE

ICT TITAN

PROGRAMS BY D B WILLIAMS

PRINCIPAL COMPONENT ANALYSIS

PALAEOECOLOGY AND STRATIGRAPHY

## COLUMBIA UNIVERSITY

DR J IMBRIE

FORTRAN

IBM 7094

PROGRAMS BY J IMBRIE, VINCE MANSON AND SUNDRY UNSUNG IBM PEOPLE.

MATRIX MANIPULATION OF GEOLOGIC DATA, WITH EMPHASIS ON FACTOR ANALYSIS

SIZE-FREQUENCY DATA ON SEDIMENTS

FOSSIL AND MODERN COMMUNITY DATA

CHEMICAL ANALYSIS OF ROCKS, ETC.

## EDINBURGH UNIVERSITY

DR G Y CRAIG

FORTRAN IV

IBM 7094

PROGRAMS BY G OERTEL

GENERATION OF MODELS OF ANIMAL POPULATIONS

MR P MCL D DUFF

ATLAS AUTOCODE

ICT ATLAS

KDF 9

PROGRAMS BY M OSBORNE

LINEAR, QUADRATIC AND CUBIC TREND SURFACE ANALYSIS

DR E K WALTON  
PROGRAMS BY M OSBORNE

ICT ATLAS (MANCHESTER)

DETERMINING MOMENTS OF DISTRIBUTION OF GRAIN SIZES  
TREND SURFACE ANALYSIS

CONTROLS OF SEDIMENTATION ESPECIALLY IN COAL MEASURES

HUNTING GEOLOGY AND GEOPHYSICS LTD

MR D B MORRIS ELLIOTT AUTOCODE AND ALGOL ELLIOTT 803

SPECIALIST GEOPHYSICAL PROGRAMMES

INSTITUTE OF GEOLOGICAL SCIENCES

EDINBURGH OFFICE

MR J M DEAN

MR W A READ

FORTRAN IV

IBM 7040 (KANSAS)

PROGRAMS BY D F MERRIAM

TREND SURFACE ANALYSIS AND FACTOR ANALYSIS OF STRATIGRAPHICAL DATA FROM  
CYCLICALLY-DEPOSITED CARBONIFEROUS SEDIMENTS IN THE MIDLAND VALLEY OF  
SCOTLAND

ALSO INTERESTED IN TIME SERIES, FOURIER SERIES AND ANY APPLICATION OF  
COMPUTERS TO PALAEOCURRENT ORIENTATION WORK

LEEDS OFFICE

A J WADGE

EELM KDF 9 (LEEDS UNIVERSITY)

PROGRAMS ADAPTED BY A J WADGE FROM PROGRAMS OF KANSAS GEOLOGICAL SURVEY

TREND SURFACE ANALYSIS

DETERMINATION OF THICKNESS AND FACIES VARIATIONS IN THE PERMO-TRIAS  
EVAPORITE SEQUENCE OF THE VALE OF EDEN. CLOSELY ALLIED WITH THE SIX-  
INCH FIELD MAPPING OF THE PENRITH AREA (GS SHEET 24)

OVERSEAS DIVISION

DR J P BERRANGE

NO COMPUTER USED AT PRESENT

MR J E G W GREENWOOD

INTERESTED, IN PARTICULAR, IN APPLICATIONS TO PHOTOGEOLOGICAL PROBLEMS.

KANSAS GEOLOGICAL SURVEY

DR D F MERRIAM

FORTRAN, BALGOL AND ALGOL 60

IBM 7040  
GE 625 (IN 1967)  
IBM 7090  
B 5500

PROGRAMS WRITTEN BY GEOLOGISTS, PROGRAMMERS AND SUMMER CONSULTANTS AT  
THE KANSAS GEOLOGICAL SURVEY

THE PROGRAMS ARE DESIGNED FOR THE PROCESSING OF GEOLOGICAL DATA.  
A LIST OF THE AVAILABLE PROGRAMS AND OF COMPUTER PAPERS IS PUBLISHED BY  
THE SURVEY.

AT PRESENT THE EMPHASIS IS ON THE FOLLOWING. TREND ANALYSIS, WHICH  
ATTEMPTS TO ISOLATE THE FUNDAMENTAL, LARGE-SCALE EFFECTS CONTAINED  
WITHIN THE DATA THAT WILL EXPLAIN A MAJOR PORTION OF THE VARIATION.  
CLUSTERING TECHNIQUES, THAT ARE BASED ON THE SIMILARITY OF VARIOUS  
CHARACTERS OF THE ITEMS BEING GROUPED AND THEIR RELATION TO EACH OTHER  
IN N-DIMENSIONAL SPACE. FACTOR ANALYSIS, THAT ATTEMPTS TO INTRODUCE ORDER  
INTO IRREGULAR OR ERRATIC DATA, AND SEPARATE IT INTO BASIC COMPONENTS,  
THUS ALLOWING MEANINGFUL INTERPRETATION  
INCREASED USE OF MODELS IS ANTICIPATED, ESPECIALLY IN SEDIMENTATION AND  
STRATIGRAPHY, IN THE NEAR FUTURE.

#### KEELE UNIVERSITY

DR T BURNABY

FORTRAN  
ALGOL 60 AND NEAT

IBM 1620  
ELLIOTT 4130 (IN 1967)

PROGRAMS BY T BURNABY

DISCRIMINANT AND GENERALIZED DISTANCE ANALYSIS  
NUMERICAL TAXONOMY, PATTERN RECOGNITION, ETC  
MULTIPLE REGRESSION, POLYNOMIAL AND POWER FUNCTION FITTING, ETC.

MAINLY PALAEOONTOLOGICAL, MORPHOMETRY AND TAXONOMY OF CARBONIFEROUS NON-  
MARINE LAMELLIBRANCHS, PLEISTOCENE SHREWS, NORTH AMERICAN PUMAS. ALSO  
STRATIGRAPHY AND GEOCHRONOLOGY.

#### LEICESTER UNIVERSITY

MR M J SACKIN  
DR P H A SNEATH

ELLIOTT ALGOL  
FORTRAN IV

ELLIOTT 803  
ICT ATLAS (CHILTON)  
IBM 7090 (I.C.)  
ELLIOTT 4130 (SOON)

PROGRAMS BY P H A SNEATH, MRS L A JORDAN, AND M J SACKIN  
ALSO PROGRAMS BY P F SMITH AND O T SPITZ OF THE KANSAS GEOLOGICAL SURVEY

MOST OF THE PROGRAMS ARE FOR CLASSIFICATION IN BIOLOGY, BUT CAN BE  
APPLIED TO VARIOUS FIELDS, INCLUDING GEOLOGY. MANY OF THE PROGRAMS ARE  
DESCRIBED IN ISSUE NO 1 OF THE CLASSIFICATION PROGRAMS NEWSLETTER,  
DISTRIBUTED BY THE MEDICAL RESEARCH COUNCIL MICROBIAL SYSTEMATICS  
RESEARCH UNIT, UNIVERSITY OF LEICESTER. THESE INCLUDE THE FOLLOWING  
04-ALGOL-04 CROSS-ASSOCIATION. SIMILAR TO CROSS-CORRELATION, BUT FOR  
NON-NUMERIC SEQUENCES SUCH AS AMINO ACID SEQUENCES OR ROCK STRATA. (MJS)  
04-FORT-03 FORTRAN IV VERSION OF ABOVE (PFS)  
09-ALGOL-03 BEST FIT OF 2-D FIGURES TAKES TWO FIGURES OF HOMOLOGOUS  
POINTS, SCALES FIGURES TO SAME SIZE, AND PLACES THEM IN POSITION OF BEST  
FIT. CALCULATES MEASURES OF FIT FOR INPUT TO TREND SURFACE PROGRAM  
(PHAS AND LAJ).  
09-ALGOL-04 3-D VERSION OF BEST FIT PROGRAM.  
09-ALGOL-07 CURVE-SEEKING FROM SCATTERED POINTS IN ANY NUMBER OF  
DIMENSIONS. ADJUSTS POSITION OF POINTS TO COLLAPSE THEM INTO SMOOTH  
CURVES (PHAS AND LAJ, NOT YET FULLY WRITTEN). SEE PHAS (1966) COMPUTER J.  
8 383-391

PROGRAM SPECIFICATION AND/OR REPRINTS OF RELEVANT ARTICLES ARE AVAILABLE  
FOR THE ABOVE PROGRAMS ON REQUEST TO MJS.  
FORTRAN IV TREND SURFACE PROGRAM UP TO 6TH ORDER (OTS) IS ALSO IN USE

INTERESTED, IN COLLABORATION WITH DR D F MERRIAM, IN PUTTING ONTO COMPUTERS  
THE FOLLOWING GEOLOGICAL PROBLEMS  
TREND SURFACE ANALYSIS  
CONCORDANCE BETWEEN TRENDS  
STRIKE AND DIP CONTOURING  
MATCHING OF ROCK SEQUENCES FROM DIFFERENT LOCALITIES  
CYCLOTHEM STUDIES  
MEASURING RESEMBLANCE BETWEEN MAPS AND SURFACES.

LONDON UNIVERSITY

IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY

C J DIXON

MOSTLY FORTRAN

SOME ALGOL 60

IBM 1401/7090

ICT ATLAS (LONDON)

PROGRAMMING ADVISER TO THE GEOLOGY DEPARTMENT  
PROGRAMS DEVELOPED AT IMPERIAL COLLEGE AND ELSEWHERE.

STATISTICAL ANALYSIS OF GEOLOGICAL FEATURES OF MINERAL DEPOSITS.  
PROGRAMS INCLUDE DATA EDITING ROUTINES AND VARIOUS MULTIVARIATE  
ANALYTICAL PROGRAMS  
GRAPHICAL INPUT/OUTPUT OPERATIONS.  
UNDER DIRECTION OF C J DIXON

DATA PROCESSING AND STATISTICAL ANALYSIS IN APPLIED GEOCHEMISTRY.  
PROGRAMS BY R G GARRETT IN FORTRAN IV.  
DETERMINATION OF FREQUENCY DISTRIBUTION MEAN S.D. SKEWNESS KURTOSIS  
DETERMINATION OF ANALYTICAL PRECISION  
SURFACE TREND ANALYSIS - MODIFICATION AFTER WHITTEN  
ROLLING MEAN ANALYSIS  
FACTOR - VECTOR ANALYSIS MODIFICATION AFTER IMBRIE AND VAN ANDEL  
UNDER DIRECTION OF I NICHOL

CALCULATIONS IN ROCK MECHANICS AND SOIL MECHANICS  
SPECIALLY DEVELOPED PROGRAMS TO SIMULATE VARIOUS ROCK MECHANICAL AND  
SOIL MECHANICAL PROBLEMS.  
UNDER GENERAL DIRECTION OF J KNILL

PROCESSING AND CORRECTION OF ELECTRON PROBE MICROANALYSIS RESULTS.  
SPECIALLY DEVELOPED PROGRAMS TO CARRY OUT PROGRAMS FOR ABSORPTION ETC.  
UNDER DIRECTION OF M J FROST AND T K KELLY

SIMULATION OF DEFORMATION IN ROCKS  
SPECIALLY DEVELOPED SIMULATION PROGRAMS TO STUDY EFFECT OF STRESSES ON  
PEBBLY OOLITES ETC.  
UNDER DIRECTION OF N J PRICE.

DATA PROCESSING AND STATISTICAL ANALYSIS OF FEATURES APPEARING ON AIR  
PHOTOGRAPHS  
SPECIALLY DEVELOPED ROUTINES  
DIRECTION BY J NORMAN

J A FRANKLIN                      FORTRAN IV  
PROGRAMS BY J A FRANKLIN

IBM 7090

ROCK NOISE ANALYSIS  
STRESS DISTRIBUTION AROUND OPENINGS IN ELASTIC MEDIA

ROCK MECHANICS AND ENGINEERING

MR N C GAY                      FORTRAN IV  
PROGRAMS BY N C GAY

IBM 7090

TO DETERMINE THE MOTION OF NON-RIGID ELLIPTICAL PARTICLES EMBEDDED IN A  
VISCOUS FLUID DURING SIMPLE AND PURE SHEAR DEFORMATIONS OF THE  
PARTICLE-FLUID SYSTEM.

STRUCTURAL GEOLOGY PROBLEMS - IMMEDIATE ONES BEING DETERMINATION OF  
FINITE STRAIN IN DEFORMED ROCKS.

A W MALONE                      FORTRAN IV  
PROGRAMS BY B STIMPSON AND A W MALONE

IBM 7090

ROCK NOISE ANALYSIS (ACOUSTIC SIGNALS GENERATED BY STRESSING)  
THE AMPLITUDE DISTRIBUTION AND ENERGY OUTPUT RELATIONS

ROCK ENGINEERING

DR H MORGENSTERN                      FORTRAN

IBM 7090  
ICT 1900

PROGRAMS BY V E PRICE, CITY UNIVERSITY, AND DR H MORGENSTERN

MECHANICS OF LANDSLIDES  
OPTICAL RESPONSE OF AGGREGATE OF ORIENTED BIREFRINGENT CRYSTALS  
STRESSES IN ROCK MASSES

LANDSLIDES AND RELATED PHENOMENA  
PARTICLE ORIENTATION IN SEDIMENTS  
SEDIMENTATION AND COMPACTION OF SEDIMENTS  
VARIOUS PROBLEMS RELATED TO STRESSES IN SOILS AND ROCKS

B STIMPSON  
PROGRAMS BY B STIMPSON

FORTRAN IV

IBM 7090

STATISTICAL CORRELATION, IN PARTICULAR, LINEAR REGRESSION ANALYSIS  
STRESS DISTRIBUTIONS FOR VARIOUS IDEAL BOUNDARY LOADS AND GEOMETRY  
RELAXATION TECHNIQUES FOR STRESS ANALYSIS  
FINITE ELEMENT METHOD FOR STRESS ANALYSIS

INDEX TESTS ON ROCKS - STATISTICAL  
STRESS DISTRIBUTION UNDER DAMS WITH IRREGULAR GEOLOGY.

KINGS COLLEGE  
A HALL

INTERESTED IN PETROLOGICAL AND CRYSTALLOGRAPHIC CALCULATIONS

WYE COLLEGE  
DR B BOOTH

FORTRAN II

IBM 1620  
ELLIOTT 4130

PROGRAMS BY DR T P BURNABY

TREND SURFACE ANALYSIS OF GEOLOGIC DATA  
CALCULATION OF CELL CONTENT

CONVERSION OF RAW WEIGHT PERCENTAGES (CHEMICAL ANALYSIS) INTO CATION  
PERCENTAGES, CATAMOLECULAR NORMS, NIGGLI VALUES, AND CELL CONTENT  
TREND SURFACE ANALYSIS OF GEOLOGIC (MODAL) DATA.

NATIONAL COAL BOARD  
MR M J CLARKE

IBM 360/50

INTERESTED IN GENERAL INFORMATION AND BIBLIOGRAPHIES  
STRATEGY ADOPTED  
OVERALL - TO ASSESS THE FINANCIAL EFFECTS OF VARIOUS LEVELS OF ERROR, IN  
THE SPATIAL ARRANGEMENT OF THE SEDIMENTARY FRAMEWORK AND TECTONIC SETTING  
OF COAL SEAMS, ON ALTERNATIVE PLANNED TIME DEPENDENT GEOMETRIES OF THE  
MINES OVER 5 YEAR PERIODS UPDATED ANNUALLY.  
NOW - TO PRINT OUT CONTOURED RAW DATA ON THE THICKNESS, SEAM STRUCTURE,  
QUALITY AND QUANTITIES OF COAL SEAMS AND THE ROOF AND FLOOR STRATA.  
LATER - TO OBTAIN GENERALIZED DATA ON THE INTENSITY AND ORIENTATION OF  
FAULTING IN COALFIELDS.

MR R H HOARE  
MR A J HUGHES  
MR A R L JONES

IBM 1401  
IBM 360/50

PROCESSING AND FORECASTING OF DATA ON COAL SEAMS AND SURROUNDING STRATA

FILING OF A LARGE MASS OF DATA ON COAL SEAMS AND SURROUNDING STRATA  
RETRIEVAL OF THE DATA FOR SPECIFIC MINING PURPOSES  
PROJECTION OF DATA TO NEW MINING AREAS

MR G H SCOTT                      ELLIOTT ALGOL                      ELLIOTT 503  
PROGRAMS BY J M RANDALL, AMD, DSIR, WELLINGTON AND G H SCOTT

STRATIGRAPHIC RANGE OF TAXON (SPECIFIC AND GENERIC RANK)  
FAUNAL LISTS FOR GIVEN LITHOSTRATIGRAPHIC UNIT  
DICTIONARIES OF LITHOSTRATIGRAPHIC NAMES  
PLOT OF SAMPLE LOCALITIES (CALCOMP PLOTTER)  
ANALYSIS OF FAUNAL LISTS TO DETECT RECURRENT GROUPS  
SEDIMENTARY - FAUNAL RELATIONSHIPS

MR C C LEAMY  
GENERAL INTEREST IN ESTABLISHMENT OF DATA BANKS, STORAGE AND RETRIEVAL  
OF GEOLOGICAL INFORMATION AND DATA.

PROFESSOR P ALLEN                      FORTRAN II  
PROGRAMS FROM NORTHWESTERN UNIVERSITY

WEALDEN SEDIMENTOLOGY AND STRATIGRAPHY

MR E BUMSTEAD                      FORTRAN                      ICT ATLAS(CHILTON)  
PROGRAMS BY E BUMSTEAD, A PARKER AND T V LOUDON  
RECALCULATION OF GEOCHEMICAL DATA AND SIMPLE STATISTICS

DR D T HOPKINS                      ELLIOTT    ALGOL                      NATIONAL-ELLIOTT 803  
PROGRAMS BY D T HOPKINS ASSISTED BY COMPUTER UNIT STAFF

REDUCTION OF GRAVITY FIELD RESULTS.

COMPUTING RESULTS OF FIELD DATA, ANALYSING THIS DATA, COMPUTING  
THEORETICAL GRAVITY MODELS FOR COMPARISON WITH FIELD DATA.  
ANALYSIS OF ELECTRON-PROBE MICROANALYSER RESULTS.

DR T V LOUDON                      FORTRAN IV                      ICT ATLAS (CHILTON)  
PROGRAMS BY T V LOUDON AND FROM IBM, BIMD, COOLEY AND LOHNES,  
NORTHWESTERN UNIVERSITY, KANSAS GEOLOGICAL SURVEY AND ATLAS COMPUTER  
LABORATORY

STORAGE AND RETRIEVAL OF INFORMATION ABOUT SEDIMENTARY ROCKS.  
METHODS OF PRESENTING GEOLOGICAL DATA FOR COMPUTER ANALYSIS.  
DEVELOPMENT OF PACKAGE OF PROGRAMS FOR DATA ANALYSIS, SIMULATION AND  
REPRESENTATION OF GEOLOGICAL HYPOTHESES WITHIN THE COMPUTER.



MR A PARKER  
PROGRAMS BY A PARKER AND T V LOUDON

FORTRAN

ICT ATLAS (CHILTON)

CORRECTION PROCEDURES FOR CONVERSION OF X-RAY SPECTROMETER DATA TO ELEMENT  
PERCENTAGES IN ROCKS AND MINERALS.  
STATISTICAL PROCEDURES FOR TREATMENT OF GEOCHEMICAL DATA.

THE BEHAVIOUR OF ELEMENTS DURING WEATHERING.

#### ST ANDREWS UNIVERSITY OBSERVATORY

DR A J COLE  
PROGRAMS BY D I GOOD, A J COLE AND J G MACDONALD.

FORTRAN AND ALGOL

IBM 1620

GLOBAL POLYNOMIAL FIT OF TREND SURFACES. SEE K.U. STATE GEOLOGICAL SURVEY.  
PUBLICATION 14 PROGRAMME MODIFIED TO REPEAT CALCULATION ON RESIDUALS.  
LOCAL PROGRESSIVE FIT OF TREND SURFACE WITH CONTOURED OUTPUT. PROGRAM UNDER  
DEVELOPMENT.  
CONVERSION OF OXIDE PERCENTAGES TO CATION PERCENTAGES ETC.

TREND SURFACE FITTING IN COLLABORATION WITH D MERRIAM, KANSAS UNIVERSITY,  
STATE GEOLOGICAL SURVEY.

#### SHEFFIELD UNIVERSITY

MR G TAYLOR  
PROGRAMS BY WHITTEN (1963)

FORTRAN I

ICT ATLAS

TREND SURFACE ANALYSIS

STRUCTURAL GEOLOGY, PETROLOGY AND VARIATION OF GRANITE MASSIFS

#### STANFORD UNIVERSITY

DR J W HARBAUGH  
PROGRAMS BY J W HARBAUGH AND OTHERS

ALGOL 58

FORTRAN IV

IBM 7090

NUMERICAL TAXONOMY DISTANCE COEFFICIENTS. FACTOR ANALYSIS.  
HARMONIC ANALYSIS OF GEOLOGIC STRUCTURES  
TREND-SURFACE ANALYSIS.  
SIMULATION OF SEDIMENTATION AND OF COMPETITION BETWEEN MARINE ORGANISM  
COMMUNITIES.

#### SEDIMENTATION

MARINE PROCESSES BEACH NEAR-SHORE PHENOMENA. SEDIMENT TRANSPORT  
BASIN DEVELOPMENT.  
ANALYSIS OF TECTONIC HISTORY OF SEDIMENTARY BASINS.

#### STOCKHOLMS UNIVERSITET

PROF R A REYMENT  
PROGRAMS BY R A REYMENT

FORTRAN

CDC 3600, (UPPSALA)

ANALYSIS OF BIOLOGICAL VARIATION IN FOSSIL AND LIVING ANIMALS. SEDIMENTOLOGY.  
MOST PROGRAMS CONCERN PROCEDURES OF MULTIVARIATE STATISTICAL ANALYSIS.

THEORETICAL PROBLEMS IN BIOLOGY EVALUATION OF ECOLOGIC DATA ON THE NIGER  
DELTA.

UNIVERSITY OF WASHINGTON

J C KELLEY

FORTRAN IV

IBM 7090/7094

PROGRAMS BY J C KELLEY

A NUMBER OF STATISTICAL OPERATIONS - TREND SURFACE ANALYSIS, FACTOR ANALYSIS,  
DISCRIMINANT FUNCTION ANALYSIS, ETC PLUS PROGRAMS FOR THE TREATMENT OF  
FABRIC DATA AND FOR THE STUDY OF STOCHASTIC PROCESS MODELS IN OCEANOGRAPHY.

STUDIES OF SEDIMENT VARIABILITY AND TRANSPORT. METAMORPHIC AND SEDIMENTARY  
FABRIC ANALYSIS.

UNIVERSITY OF WATERLOO

D LAWSON

FORTRAN

ICT ATLAS (CHILTON)

PROGRAMS BY T V LOUDON

ANALYSIS OF CROSS-BEDDING AND RIPPLE-MARKS.

STUDY OF PALAEOCURRENTS

STUDY OF INTERRELATIONSHIPS BETWEEN TRACE AND MAJOR ELEMENTS IN CLASTIC  
SEDIMENTARY ROCKS OF PRECAMBRIAN AGE.

UNIVERSITY COLLEGE OF WALES, ABERYSTWYTH.

DR M R DOBSON

WE ARE AT PRESENT DEVELOPING AN ANALOG COMPUTER OF THE DOVEY ESTUARY  
TOGETHER WITH THE PHYSICS DEPT.

SEDIMENTATION, FLORA, FAUNA, DISTRIBUTION

UNIVERSITY COLLEGE OF SWANSEA

DR G KELLING

FORTRAN

IBM 1620

ICT 1905 (FROM AUG 1966)

PROGRAMS BY IBM AND J M BEVAN

{ IBM 6 0.67 MODIFIED } SIMPLE LINEAR REGRESSION  
{ IBM 6 0.79 MODIFIED } THREE WAY CHI-SQUARE ANALYSIS  
{ IBM 6 0.82 MODIFIED } TWO WAY CHI-SQUARE ANALYSIS  
{ DAVIES - BEVAN, SEDIMENTOLOGY, IN PRESS } GRAPHICAL PRESENTATION OF  
GEOLOGICAL DATA.

FOR ASSESSING INTERACTION, STATISTICAL SIGNIFICANCE AND RELIABILITY OF ANY  
GEOLOGICAL VARIABLES AND EXPRESSING THE DATA, GRAPHICALLY. (IN PRACTICE  
THE PROGRAMS HAVE PRINCIPALLY BEEN USED IN REGIONAL STUDIES OF SEDIMENTARY  
PETROGRAPHY).

-----  
GEOLOGICALLY ORIENTED SCHEME FOR SHARING INFORMATION ON PROGRAMMING  
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THE INCREASING USE OF THE COMPUTER BY GEOLOGISTS SUGGESTS THAT A SCHEME FOR KEEPING GEOLOGICAL COMPUTER-USERS IN TOUCH WITH ONE ANOTHER MIGHT NOT COME AMISS

A STARTING POINT MIGHT BE THE PREPARATION OF A LIST OF THE NAMES OF SOME GEOLOGISTS INTERESTED IN THE USE OF THE COMPUTER, TOGETHER WITH AN INDICATION OF THEIR SPECIAL INTERESTS. THE LIST COULD BE DISTRIBUTED INITIALLY AMONG THOSE REPLYING TO THIS CIRCULAR.

IF YOU ARE WILLING TO CONTRIBUTE INFORMATION FOR THE LIST, IT WILL BE GRATEFULLY RECEIVED. THE SORT OF INFORMATION THAT MIGHT BE USEFUL IS INDICATED BELOW.

I HOPE THAT YOU TOO WILL FEEL THAT SUCH A SCHEME HAS A USEFUL PURPOSE, AND I WOULD BE GLAD OF YOUR COMMENTS. SEVERAL COPIES OF THE CIRCULAR HAVE BEEN ENCLOSED, AS SOME OF YOUR COLLEAGUES MAY ALSO BE INTERESTED.

-----  
YOUR NAME AND ADDRESS

THE MAKE MODEL AND LOCATION OF THE COMPUTER YOU USE (IF ANY)

BY WHOM WERE YOUR COMPUTER PROGRAMS WRITTEN AND IN WHICH COMPUTER LANGUAGE

THE PURPOSE OF THE PROGRAMS

THE GEOLOGICAL PROBLEMS FOR WHICH YOU USE OR INTEND TO USE THE COMPUTER

DR T V LOUDON, SEDIMENTOLOGY RESEARCH LABORATORY, WHITEKNIGHTS PARK,  
READING, BERKSHIRE, ENGLAND.